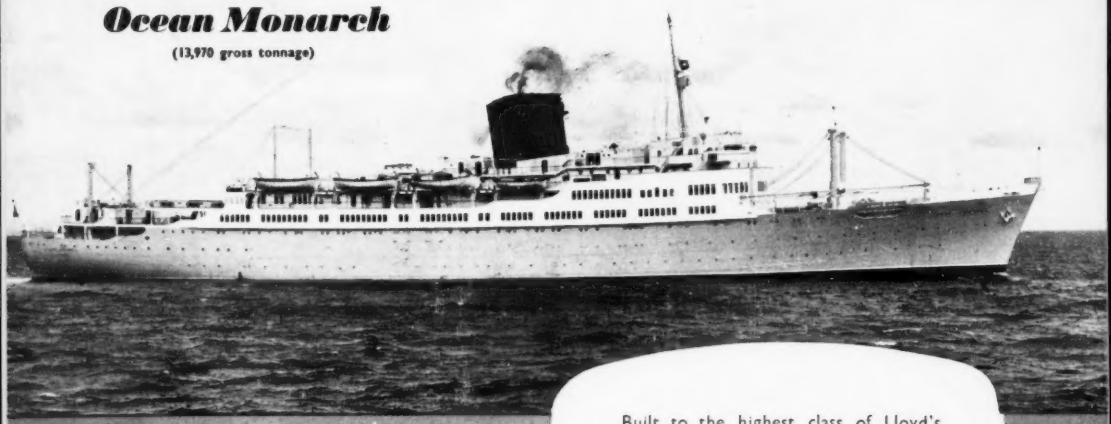
The
SHIPPING WORLD
AND SHIPBUILDING & MARINE ENGINEERING NEWS

VOL. CXXV No. 3036 WEDNESDAY, SEPTEMBER 5, 1951 Price 1/6

T.S.
Ocean Monarch
(13,970 gross tonnage)



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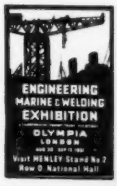

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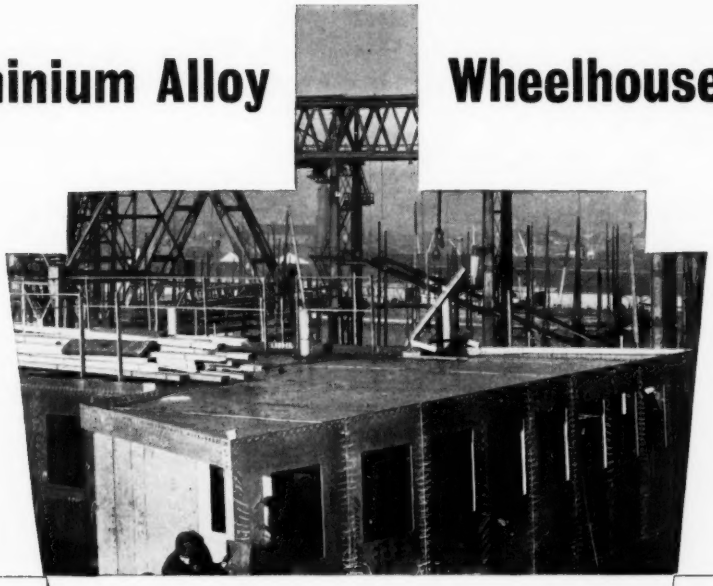

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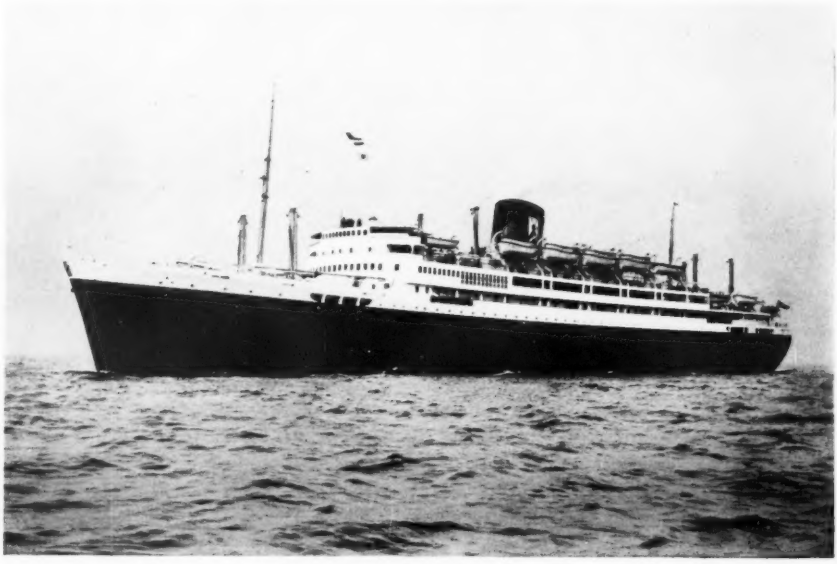

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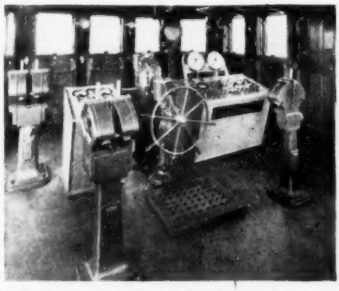
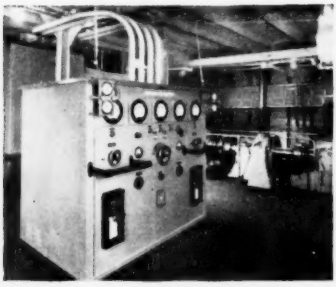
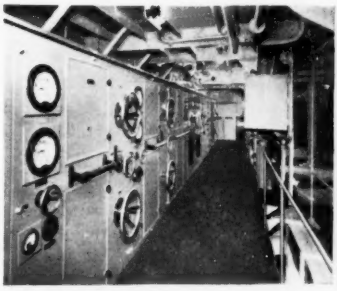


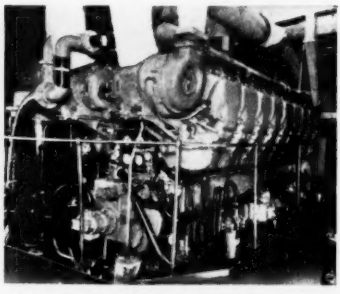
WHEELHOUSE : *showing Propulsion and Pumping Control*



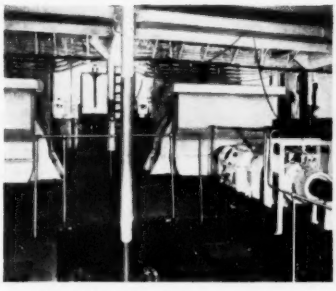
PUMP CONTROL BOARD



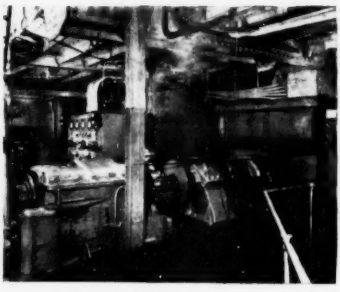
MAIN CONTROL BOARD



MAIN DIESEL GENERATING SETS



PROPULSION MOTORS



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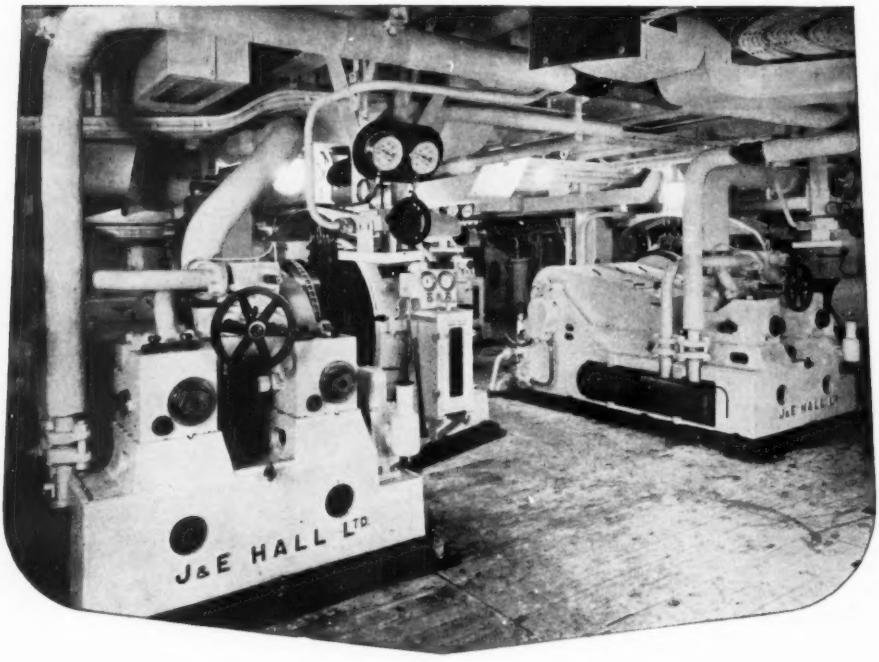

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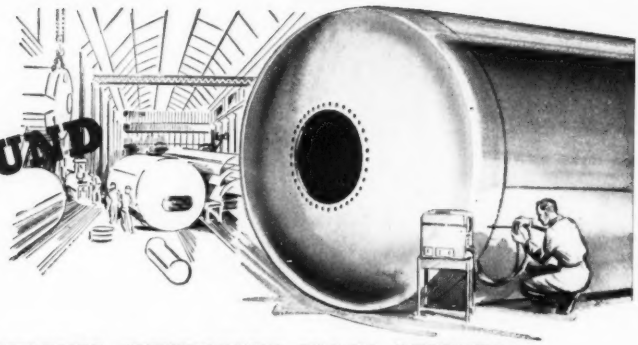

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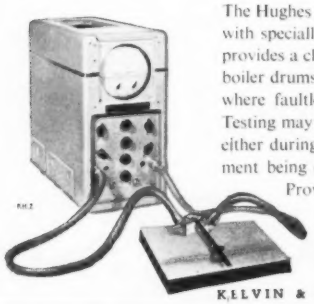

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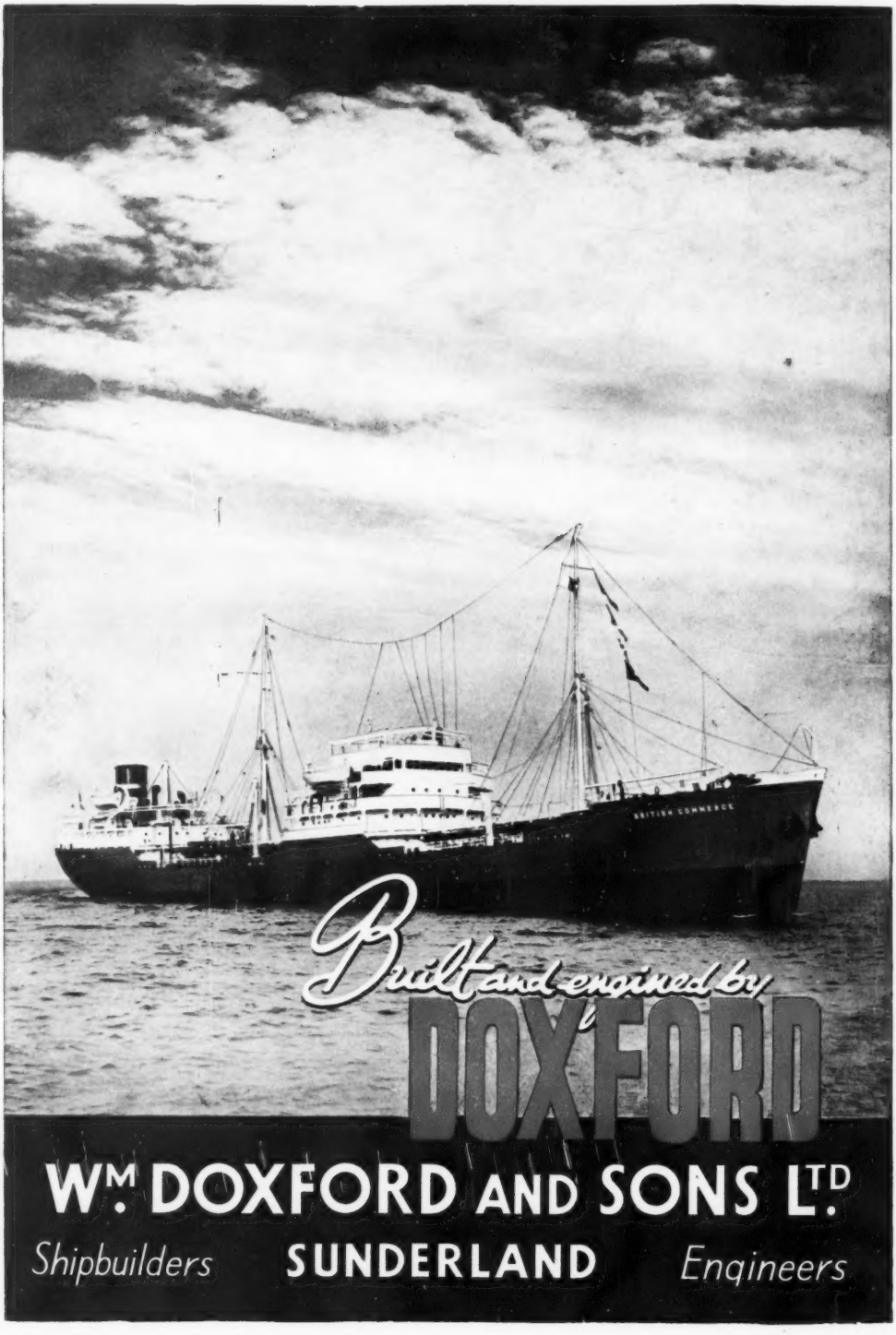
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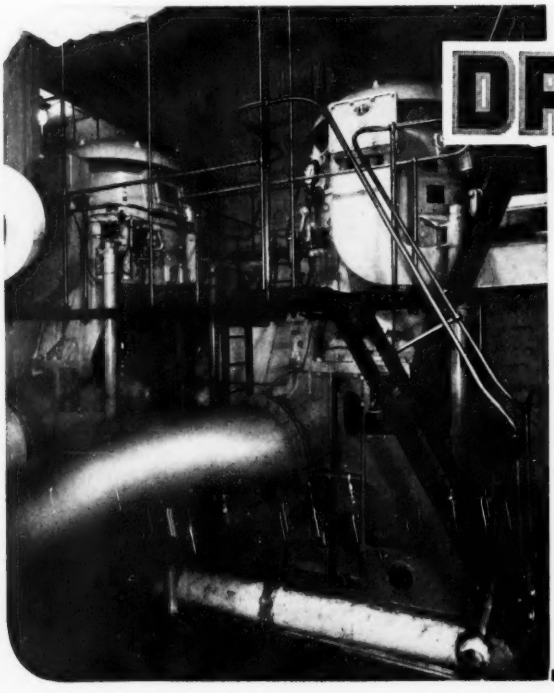

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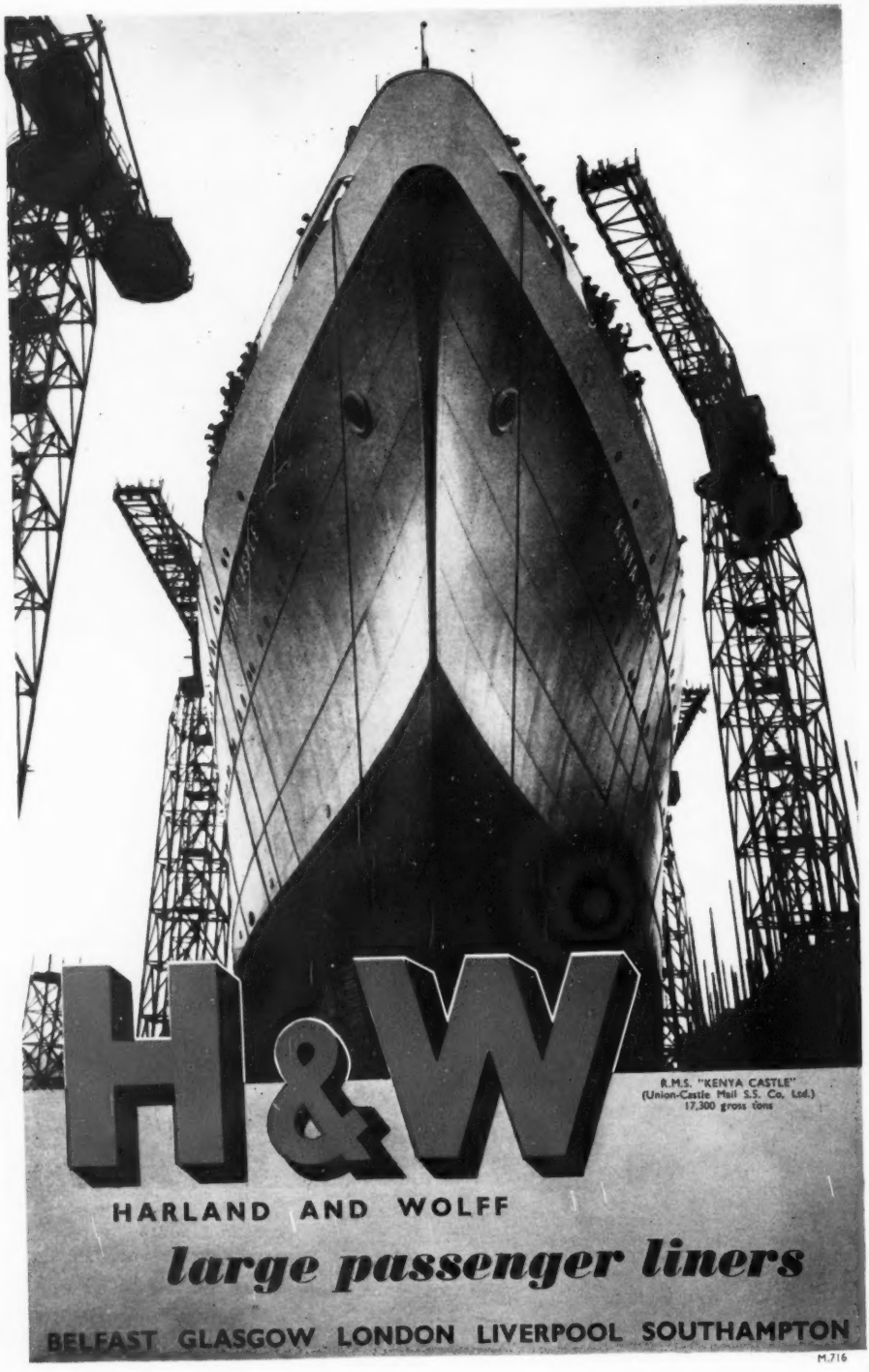
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THE SHIPPING WORLD

CAUSE AND EFFECT

BY NONE are the returns of Lloyd's Register studied with closer interest than by the leaders of the trade unions which are associated with the shipbuilding industry in all its ramifications. They were, as events have shown, impressed by the fact that contracts for upwards of 2,000,000 tons gross of ships were in hand at the end of June and that the order books were so well filled that full employment, or almost full employment for most trades, in at least the bigger yards, was assured for four or five years. They know also that few of the contracts now in hand or on order were placed on a fixed price basis either for customers in this country or overseas and that any increase in wages, which form a large part of the cost of ships, would be passed, in the first place, on to the owners. What happened afterwards was not, they contended, mistakenly of course, their concern. On the other hand, the cost of living had gone up and was still rising. They were not prepared, rearmament or no rearmament, to accept on behalf of their members smaller "real wages", to quote from the latest report of the Council of the Trade Union Congress. With the approval of that body which demands more pay and lower costs of things which the workers buy, every one of the 37 societies is preparing its case for bigger pay packets at a time when, owing to a variety of circumstances, some preventable and some not preventable, the Steel Corporation, of the Government's own creation, has raised the price of steel, while most other raw materials are becoming more expensive.

So most owners, who have arranged for the construction of new ships on the time and line basis, so to speak, will have to meet much larger bills and, when the new vessels have been completed, the running costs will almost certainly be much greater than was estimated when the building programmes of the various firms concerned were drawn up. Will officers and seamen also want to keep step with the higher cost-of-living figures? They have homes to support, and wives will not be satisfied if they cannot buy as much in goods with the Treasury notes they handle in 1952 as they did two or three years ago. Increased wages mean higher costs of everything that the workers buy. That is the dilemma which faces trade union leaders, for all the talk of keeping down the cost of living index by limiting dividends or by restricting distributed profits is moonshine. So far as the officers and men of our merchant ships are concerned, they have so far done well, owing to wise leadership.

We have every sympathy with the seafarers. Like miners, policemen and others, they do not lead the humdrum domestic lives of the workers in shipyards and engine shops. The members of the National Union of Seamen, like those of the officers' organisations, have, it should be emphasised, been well served in past years by their representatives on the National Maritime Board, the most successful of all conciliation machines. Mr. Tom Yates, general secretary of the N.U.S., has summarised the remarkable advance which was made under the 1951 agreement as compared with the sums paid 12 years ago—that is in 1938.

That is a record of which the leaders of this union may well be proud, and it is a feather in the cap of the owners since, with Sir Richard Snedden as their representative, this improvement has been made without any form of strike, official or unofficial. Nor is that the whole story, for some departments have profited under bonus schemes. Mr. Yates has challenged critics in these words: "I do not hesitate to say that no union can show a better series of agreements on wages and rates of pay." The general secretary of the N.U.S. is, of course, no ordinary trade union leader, because he realises that if the merchant fleets of this country are not maintained at a high level of efficiency so as to meet and beat any competitors on the trade routes, and owners cannot make reasonable profits, including allowances for depreciation, officers and men must inevitably suffer owing to the emptiness of the tills in the shipping offices in the great and little ports.

Taking into account all the features of the inflationary movement which is now in progress, managements of the maritime industries, who have to plan years ahead, are in an embarrassing position. They try to envisage the future, but they are in a dense sea fog. How can they, with all their experience as managers, make plans when so many facts are unknown? They have to bear in mind the interests of their shareholders whose money paid for the ships. The interests they receive on the actual capital employed is, by the way, a very moderate sum by comparison with the wages represented in the construction and running costs which the owners have to pay. They must show vision and courage and, as Mr. Yates has urged, replace their old and less efficient ships with new ones under some scheme of taxation relief, for they hate subsidies, or they will go under.

The Chancellor of the Exchequer, who seems not to realise that he is dependent on the sea, has so far refused to regard shipping or shipbuilding as in a class apart. They must, he has declared, receive no special consideration because they maintain the sea lines of communications from which he, at the Treasury, benefits to the tune of at least £150,000,000 a year, and an even larger sum if account is taken of insurance and brokerage earnings. It is in the conditions of embarrassment, which are discussed by the General Council of British Shipping in a convincing memorandum, that shipowners face the future. Shipbuilders are little better off, taking a long view, as they must do if they are not to face bankruptcy. They are busy at present and will be busy for many months to come. But what will happen when the ships now on order have been launched and completed? They want to keep their order books well filled. Critics may say sufficient unto the day is the evil thereof, as is the practice of the official planners, but that is not the way in which prosperous businesses are run.

Current Events

Capitalism and Industry

IT IS reported that Mr. Lionel Fraser, who, among other appointments, is chairman of Babcock & Wilcox, Ltd., contemplates initiating a campaign to explain to the man-in-the-street the important part which capital plays in the industrial life of this country. A committee is about to consider what steps can be taken to educate the nation on this matter, on which education is overdue in view of the widespread publicity which has been given to Socialist theories. The weekly wage earners have been woefully misled on the working of the capitalist system with its "risk capital," with the result that they regard profits as responsible for the rise in the cost of living. They involve, in fact, a very small sum in relation to the cost of raw materials and the amount paid in wages. It is officially admitted that dividends and interest in 1950 were greater than in the preceding year by only £24,000,000, whereas wages and salaries rose by £390,000,000 in the same period and will go up probably by another £300,000,000 in the current year as a consequence of the pending wage claims. The point to be emphasised is that wages, and *not* dividends, are the main inflationary influence in the present situation when there is a scarcity of goods in the shops, due in some degree to bulk buying. The more wages rise, the greater the buying of things on which purchase tax is levied. The value of the £, which is worth only 14s. 10d. as compared with the level in 1945, will then continue to fall unless there is a restraint of wages. In other words, a rush for bigger pay packets means that the workers will get less and not more for their money and the Chancellor of the Exchequer will receive a larger rake off, since purchase tax is on a percentage basis. In any educational movement, emphasis ought to be given to the part of "risk capital" in our economic machinery. The difference between Government methods, as illustrated by the groundnut scheme and the Gambia egg gamble, and the proper planning of private enterprise, as in shipping and shipbuilding, might well be shown very effectively.

A Well Reasoned Case

Now that the industry generally has had time to study the memorandum of the General Council of British Shipping on current taxation problems—so far as we can recall the best reasoned statement ever issued by this body—it has cause for congratulation. The arguments for reform are put fairly and squarely in simple language which anyone can understand. The members of the Royal Commission on Taxation of Profits and Income, unfamiliar as they are with the difficulties of British shipowners, should be convinced, first that efficient ships are essential to an island country; secondly, that the existing fleets are deteriorating and will continue to deteriorate unless suitable measures are taken to enable old ships to be replaced; and thirdly, that any decline in British shipping must result in a fall in the exports of all the maritime industries, which now amount to at least £150,000,000 a year; this is no slight contribution on the right side of the national trading account, which is becoming increasingly unbalanced owing to the rise in the prices of our imports of food and raw materials. Shipowners will welcome the statement early in the memorandum of an often forgotten fact:—

> The seas are free to all and the shipping trade is open to competition from every quarter. There is no home market in shipping to be protected and sheltered. It must operate and hold its own in international markets wherein the test of success is capability to render efficient service at a cost which compares favourably with that of its competitors.

Among the industries of the British Isles, those concerned with the building, equipping and management of ships should have first priority for the simple reason that we live on and by the sea. Without shipping we cannot live. Every war from the time of King Alfred has taught the same simple lesson. Though air-power is important in facilitating the quick movement of passengers, including seafarers, and "parcels," our main dependence for travel as well as the import and export of goods of all kinds remains the merchant ship. The shipping industry is responsible, first and last, for the employment of not less than a million workers, besides, as has been stated, providing exports, visible in the form of ships and their equipment, and invisible in the form of net freights which are essential to our economic health as a nation.

Obsolescent Ships

REITERATION is the secret of conviction. The Communists and, in a less degree, our own Socialists act on that theory. So the General Council reminds the Royal Commission more than once in its memorandum that the effective life of a merchant ship is 20 years and that there are more obsolete or obsolescent ships in this country's fleets today than there should be. In discussing the problem of replacement, it is pointed out that on June 30, 1950, nearly $1\frac{3}{4}$ million tons gross, or 15 per cent, of the dry cargo tonnage in the United Kingdom foreign-going fleet was over 25 years old, while of the tankers, which have a shorter useful life, over half a million tons gross, or 18 per cent, was over 20 years of age. This means, it is pointed out, that some $2\frac{1}{4}$ million gross tons of shipping was ripe for replacement in the immediate future. At the outbreak of the war in 1939 only 9 per cent of the dry cargo tonnage was over 25 years old, and 15 per cent of the tanker tonnage was over 20 years old, so, as is remarked, despite the immense amount of new building which has taken place, the United Kingdom foreign-going fleet in 1950 is still in this respect worse off than in 1939. The Commission is reminded that the cost of building a ship today is some three times as great as in the years just before the war. Where is the money to come from to pay for the new ships which must be built if the industry is to remain at adequate strength, serve the nation efficiently and make its contribution in the form of invisible exports to the trading account?

Necessary Medicine

THERE is only one answer to that question, and in the report the conclusions from the facts and figures which the Council sets out are summarised, so that every member of the Commission has them in tabloid form; unpleasant medicine it may be to the Chancellor of the Exchequer, but medicine which is necessary to a cure. It is urged that owing to the great fluctuations which take place in shipping earnings, and their vulnerability to foreign competition, shipping companies should be given wide discretion for taxation purposes to amortise the cost of their ships as quickly as possible in good times so that they may be less likely to have large unabsorbed wear and tear allowances, as they had immediately prior to the last war. It is also claimed that the balancing charges should be limited to the excess, over and above the normal wear and tear allowances, of any initial allowances plus wear and tear actually allowed and any additional sum written off. "These remedies," it is added, "constitute a modification of the present method of computation of depreciation allowance which, in the view of the General Council, would reinstate the validity in practice as well as in name of the principle of income tax; prevent and reverse the deterioration in British shipping which has already begun; and constitute a better system, not only of raising, but also of maintaining, the required revenue for the purposes of the National Economy." We trust that the Royal Commission will study this memorandum without delay and, admitting that the

case is an urgent one, especially in view of the possibility of another war, issue, as is suggested, an interim report. The matter is of supreme national importance to the survival of this country's overcrowded population, and it is of great urgency.

Disappearing Coastal Fleets

IN a letter to the *Financial Times*, Mr. G. W. Grace remarked that the review of the position of the mercantile marine by the General Council of British Shipping in its memorandum on taxation was indeed timely, but a still more grave situation would be shown to exist if, in addition to giving figures for the whole industry, the Council had given those for the smaller-sized vessels—namely, for tonnage of 2,000 to 6,000 tons d.w. engaged in the intermediate trades and for coasting tonnage under 2,000 tons d.w. He stated that the intermediate class now hardly exists in this country, and as to the coasting fleet, as a rough guess, instead of 15 per cent being 25 years of age and over, it is more likely that the figure would be somewhere between 50 per cent and 75 per cent. The cost of replacement in this case is likewise not 300 per cent up, but certainly 500 per cent. He claimed that the consequence was that this fleet, which was so vital to our existence in two wars (Dunkirk was only one glorious episode), was rapidly approaching the breaker's yard and practically no replacement was being undertaken. Mr. Grace pointed out that the depreciation allowances on these old vessels were on a derisory capital sum and, as a final blow, when they went to the breakers owners were compelled to accept a controlled scrap price which was only about half the world scrap price, and the Government collects a balancing charge at 9s. 6d. in the pound even of that. "The increase of £2 per ton for scrap just announced is, of course, per ton of scrap resulting from breaking up, and is not to be confused with a price based on the tonnage capacity of a ship, so not much relief will accrue from this."

America's Example

A TIMELY sequel to the General Council's memorandum comes from Washington. The Senate has passed a Bill to do for American shipping very much what British shipowners want our own Government to do. This measure has been sponsored by Senator Warren Magnuson, chairman of the Senate Merchant Marine Committee, in face of some opposition which was swept aside. It would give relief of taxation to operators on money which they set aside for building new ships, and of course, shipbuilders favour such relief. It was claimed by Mr. Magnuson that such legislation was urgently needed to enable American merchant shipping to compete with shipping of other nations and to keep the fleet at top strength for defence purposes. "It permits a shipowner to place a part of his earnings in a reserve fund," he added. "Normal tax and surtax on earnings placed in this fund are deferred." He denied that the bill would give shipping another subsidy as it would merely extend the present law, in some cases, to unsubsidised lines. The bill is not in its original form as several amendments were made in the hope of placating opposition, and all the provisions for accelerated amortisation were dropped. The Bill also recognises changes in procedures that have come about since the Merchant Marine Act of 1936 was passed, in that taxes on reserve funds are only deferred, whereas the funds were originally exempt from tax. The original Bill gave full tax deferment to unsubsidised lines on capital gains deposited in the companies' construction reserve funds: the revised Bill only grants tax deferments on interest earned from these gains. Subsidised lines are granted full tax deferment on all compulsory deposits in such funds, but only partial deferments on voluntary deposits. It is a strange anomaly that American rulers are more ship conscious than our own, as the events of the past five or six years show.

Oil Fires in Enginerooms

A REVISED Ministry of Transport notice (No. M.355) calls the attention of shipowners, shipbuilders and masters to the number of fires, some of them disastrous, which have occurred in the engine and boiler rooms of cargo vessels using oil fuel. Many of the examples given occurred as a result of overflow from the fuel oil settling tanks coming into contact with boilers or other heated surfaces. In one case, fire was due to an escape of fuel oil from the hot filter on the oil supply line igniting when it came into contact with the boiler casing about 2 ft. away. As a result of this fire, the ship became a total loss and 20 persons lost their lives. To prevent such accidents the Ministry recommends, among other things, that steps should be taken to ensure that overflow arrangements in tanks should be provided with an alarm device or sight glass to indicate when the tanks are overflowing, and advises serious consideration about providing such arrangements in existing ships not so equipped. Care should also be taken to see that the sounding arrangements or oil level indicating gear on such tanks do not allow oil to escape when the tanks are overfilled; and when oil filters, heaters or pumps are so sited that there is a possibility of any oil which escapes coming into contact with heated surfaces, suitable screens should be provided. Pressure pipes which are used for conveying heated oil, it is suggested, should be placed in conspicuous well-lighted positions above the platform. In the interests of safety, the owners of cargo ships using fuel oil should arrange that the installations comply with the Ministry of Transport requirements for passenger ships.

Well Buttressed

MANCHESTER LINERS, LTD., whose vessels trade on the North Atlantic run, has within recent years built up a very strong financial position. The balance sheet of the company shows that, at June 30 last, the aggregate of reserves was £1,762,000, including £836,000 in the fleet replacement account and £450,000 held in the general reserve. The issued ordinary capital of £445,000 is thus stoutly buttressed. Liquid assets at the close of the financial year included £1,003,000 in cash and £1,730,000 in an investment portfolio whose main constituent was £1,272,000 in British Government and other quoted securities having a market value of £1,306,000. The company has thus ample funds to meet trade and tax outgoings and to finance commitments of £983,000 for new tonnage. Those commitments represent three new vessels contracted for during the year under review, delivery of which is expected early next year. At the balancing date the fleet account was £873,000, compared with £439,000 at June 30, 1950, and is doubtless a conservative valuation. Profits have risen from £515,000 to £692,000, after provisions of unstated amount for repairs and depreciation. Tax on the earnings of the year absorbs £279,000 against £258,000 and there is left a net surplus of £286,000 (compared with £252,000) after a transfer of £121,000 (representing the initial allowances) to the taxation equalisation account. The ordinary dividend of 10 per cent, which costs no more than £23,000 net, is a repetition of the payment of the four preceding years and is again generously covered. Earnings, in fact, exceed 106 per cent, after debiting to the calculation the £25,000 transferred to the staff pension fund.

"WORLD SHIPBUILDING"

The second issue of *World Shipbuilding*, copies of which are available from THE SHIPPING WORLD, LTD., contains in addition to its regular features a number of articles of particular interest. In one the history of Japanese shipbuilding since the end of the war is reviewed, while another describes the new Nordberg "Supairthermal" diesel engine. Plans are given of the engineroom arrangement of a new U.S. Navy tanker with a total of 10 diesel engines, of which up to eight can be used for the main propulsion, some with diesel-electric and some with geared drive.

ON THE "BALTIC"

DIMINISHING BRITISH TRAMP FLEETS

By BALTRADER

LAST WEEK the chief subject of discussion on the "Baltic" was the memorandum presented by the General Council of British Shipping to the Royal Commission on the Taxation of Profits and Income. The reduced proportion of the world's tramp tonnage which is owned by British firms is a matter which concerns everyone in this country. In peace, we must look more than ever before to our shipping to earn a large share of the invisible exports required to make good the trade balance. In the event of hostilities, British ships are requisitioned on terms which strictly limit their earnings, as part of the national effort, but foreign vessels (to judge by the experience of the last war) have to be chartered on very different terms at great cost to our overburdened finances.

The Government is living on capital by seizing a large part of those earnings which should be devoted to the purchase of new shipping to produce revenue in peace as well as cheap and sufficient transport in case of war. An immense amount of shipping is now operated and registered abroad which would, no doubt, have been British if it were not for the impossibility of maintaining, let alone increasing, a modern fleet under the present system of taxation in Great Britain. The British flag has not lost its reputation upon the seas, but to internationally minded shipowners with no strong ties in this country, there is every inducement to go elsewhere and avoid excessive taxation. It should be the policy of the Government to attract and not to repel any who are willing to venture their capital in British shipping.

Timber from Gulf of Mexico

It is a landmark in the study of the freight markets to see quotations once more for voyages with full cargoes of timber from ports in the Gulf of Mexico. Offers of tonnage are being invited to bring pitprops from Savannah or the Gulf to the near Continent. It is 20 years since the chartering of vessels to load pitch-pine in the Gulf of Mexico came to an end. Until then, it had been a regular trade, mostly to the River Plate, but occasionally to South Africa or Europe. Some owners made a speciality of taking coal from this country to the Atlantic Islands, followed by a run in ballast to the Gulf of Mexico, and thence with pitch-pine to the Plate. The round voyage was completed with a cargo of grain home to the United Kingdom or Continent.

By degrees, however, the supply of timber in the Southern States which could be spared for export became less and less, and finally there were no more full cargoes to be obtained. When pitchpine from the Gulf ceased to be available for part of a three-legged Plate round, there remained an alternative in the carriage of case oil from the Gulf to Brazil or the Plate. That employment became a thing of the past between the great wars as a result of the development of the facilities for receiving and storing of oil in bulk. The carriage of case oil has been lost to tramp ships in favour of tankers in every civilised part of the world, excepting possibly for military purposes.

The North American market continues to hold most attention because the American Authorities have taken action to reduce rates for E.C.A. cargoes of coal, but there seems to be every prospect of a continuing strong demand for tonnage. Coal is not the only commodity waiting to be carried across the Atlantic; the autumn season is approaching, and a good deal of shipping must be provided to bring Canadian and American grain to Europe. The liner companies are showing their view of the situation by chartering at high rates for some way ahead. East of Suez it does not seem likely that demand will much improve in the near future, but towards the end of the year South African coal and Australian grain charterers may find that tonnage has escaped in one way or another from that vast area.

The remarkable feature of the homeward Plate market is that it pays an owner much better to dispatch his vessel in ballast for a voyage of several weeks to load in the North American area for Europe. Ships are regularly leaving the Plate empty in view of the shortage of cargo available there and the low rates quoted for such cargo as may be obtainable. Outward rates to the Argentine should remain at their present high level.

The Freight Markets

Inquiry continues active for tonnage to load coal and grain in North America. The general opinion is that N.S.A. rates for coal to E.C.A. countries will be difficult to enforce at their present schedule rates. There is much demand for lifting of cargoes other than E.C.A. for European and other destinations. While the E.C.A. rate is $10.50, the *Atlantico*, 9,000 tons, 10 per cent, is fixed at $11.25 for coal from Hampton Roads to Antwerp or Rotterdam for distant loading, namely, November 1/30. The *Labrador*, 9,500, is chartered, Hampton Roads to Port Said at 130s., with 1,000 discharge free, September 12/20, and $19.50 has been paid from Hampton Roads to Japan, November. The *Sussex Trader*, 32,000 quarters, 10 per cent, has been taken for grain from St. Lawrence to Eire at 24s. 9d. per quarter, with 9d. extra if two ports of discharge, September/October. The *Sparto*, 9,200 tons, is fixed for heavy grain from St. Lawrence to Brazil at $20, September, with a second trip at 50 cents less with option of loading in the Gulf or Northern Range. Further grain tonnage is required from Eastern North America to the Continent, Scandinavia, Japan and, last but not least, the United Kingdom. Tonnage has been fixed for phosphate from Tampa to near Continent, basis 98s. 9d. if Rotterdam discharge, October, coming in ballast from the Plate. On the Pacific side a similar movement in ballast to North America is observed: The *Scottish Trader*, 8,400/8,700, 532,000 bale, November, *Alcyone Hope*, 11,100 tons, 670,000 ft. bale, November/December, and *Laurentian Lake*, 9,400/9,700, are fixed from North Pacific to the United Kingdom at 170s., f.i.o., lumber and generals; the *Polam Hall*, 8,500 tons, is chartered for heavy grain, North Pacific to the United Kingdom at 145s., November/December. All these vessels will cross the Pacific in ballast from Australia.

The *Samos*, 10,400 tons, 495,000 bale, is fixed from one or two named ports, Dairen or North China, to Antwerp or Rotterdam at 162s. 6d., f.i.o., Hamburg 167s. 6d., London 170s. 5s. extra 2 loadings, 5s. two discharges, September 15/29, mixed cereals. One time charter, *Ambassador*, m.v., will make a trip to Australia at 61s. 3d. per month, delivery November; her deadweight is 10,270 tons, 492,000 bale, 11½ knots on 9½ tons. *King Edgar*, 10,000 tons, 492,000 bale, 10½ knots on 24 tons oil, is chartered for a trip from India to New Zealand at 50s., delivery October/November.

Air Charter Business

Ships crews to be repatriated from the Far East are almost always a feature of the air charter market; but this traffic is seriously interrupted by the restriction of petrol supplies. Freight to the Far East is similarly hard to ship by air. A fair amount of business has lately been arranged for transport of passengers between this country and Norway, Switzerland and Germany.

SWEDISH SHIPPING AND SHIPBUILDING

DEMAND FOR GERMAN VESSELS IN SWEDISH COASTAL TRADE

By THE SHIPPING WORLD'S Own Correspondent

THE TIMBER business shows little vitality, and there is no tonnage required for sawn goods from Sweden to United Kingdom ports. Chartering of props from Finland has fallen off, although the Timber Control is showing some interest in tonnage from White Sea ports. There are few bookings for coal and coke from United Kingdom ports to Sweden, and even from Continental ports to Sweden few cargoes are reported. However, new quantities of coke are expected from Emden/Weser/Lübeck, as well as Holland. According to the *Svenska Handelsbanken* the general freight index shows a rise of four points from 456 in June to 460 in July, the index being based on August 1939 = 100.

	General index	Coal	Grain	Wood	Pulp
Dec. 1949	212	243	133	235	236
Dec. 1950	313	343	202	341	363
June 1951	456	392	414	582	435
July 1951	460	386	322	628	502

The Gothenburg Harbour Board has approved a budget of Kr.17,790,000 for 1952, thus estimating for about the same revenue from ships and the movement of goods as during 1950. Taking into consideration the fact that harbour dues have been increased this year, it means a decrease of traffic by 15 per cent. As salaries and the prices of materials have risen considerably, a general rise of about 25 per cent for maintenance costs and running expenses has been allowed for. On the revenue side we note Kr.3,000,000 from the harbour dues paid by vessels, Kr.6,000,000 from port charges on goods, and Kr.4,000,000 from crane dues. A total of Kr.1,490,000 is set aside for rebuilding and port improvements.

The Nordseewerke shipyard at Emden is planning to build three larger vessels, specially constructed for carrying iron ore between the Scandinavian iron ore ports and the German industrial ports along the Rhine. These vessels would make transhipment from the Swedish vessels to Rhine barges unnecessary. The authorities in Western Germany have drawn up plans for the improvement of the Dortmund-Ems Canal at a cost of 500,000 Reichmarks, to make this waterway accessible for barges and motor vessels up to 1,500 tons. It is reported that there will be possibilities of direct transport from Scandinavia as well as other parts of the world.

Swedish Coastal Trade

The Charterers' Association at Malmö, in a petition to the Swedish Board of Trade, has stressed the necessity of giving a required number of German vessels permission to trade along the Swedish coast. The rates offered by these German vessels should not exceed those obtained by Swedish motor auxiliary sailing vessels. It is maintained that this year charterers admitted a rise in rates which well covered the rising costs of the vessels. In May this year the freight market stiffened considerably when the majority of the small-sized vessels trading in Swedish coastal waters were employed for the transport of coal from Baltic ports. In spite of the fact that rates for upper North Sweden have increased by 70 per cent and on the Härnösand range by 50 per cent in comparison with last year, there was no real improvement in the tonnage supply. Taking into consideration that the fleet of motor sailers has decreased by one-third, there is obviously not enough of these vessels to meet the demand both for coastal transport and coal imports. At the moment vessels are urgently needed for the transport of great quantities of cement, limestone, etc. Railway transportation is out of question, according to the Charterers' Association, which sees the only solution in the chartering of foreign, in the first place German, tonnage.

The Swedish East Africa Line has concluded an agreement with the French company Société Navale Delmas-Vieljeux according to which they will maintain joint regular services between Scandinavia and the Continent on the one hand and ports on the Red Sea and the Indian Ocean on the other. The service will be called the Svedel Line. Already four vessels are employed by the Swedish East Africa Line on these routes, being put into this service by the shipowners Erik Brodin, of Stockholm, Ruben Olsson, of Verkebäck, and Jarl Trapp, of Newcastle-on-Tyne, who are partners in the company. From now on two vessels of the French company will join the trade. The southernmost port of call in Africa is Mombasa. A new shipping company, A/B Amphion, at Stockholm, has been established with a share capital of Sw. Kr. 650,000. The managing director is Mr. Åke Högberg, of Rederi A/B Ceres. The company has ordered a motor tanker of 16,500 tons from Kockum for delivery in 1953.

New Equipment for Eriksberg

For the daily transport of 1,800 workers and administrative personnel across Gothenburg harbour the Eriksberg shipyard recently purchased a German car ferry, built in 1944. After being towed from Travemünde the diesel-propelled ferry is now fitted out. At the end of the year Eriksberg will also possess the largest revolving pontoon crane in the country. The crane, which was formerly used during the invasion of Normandy, is being assembled by A/B Traktor & Industrimaskiner, at Malmö. With a displacement of 1,600 tons, the lifting capacity of the crane is estimated at 50 tons, and its two diesel-electric motors give a speed of about 9 knots.

The motor tanker *Bia*, of 17,400 tons d.w., launched by John Cockerill at Hoboken, Belgium, for A/B Transoil at Gothenburg, is being towed to A/B Götaverken for the installation of engines and other equipment. By transferring the construction of the hull to the Belgian shipyard much time was saved, as Götaverken has many vessels on order and no building berth available within reasonable time.

New Building for Gotaverken

The administrative and technical staff of Götaverken some weeks ago was moved into the new office, built by Svenska Vägaktiebolaget and designed by architect Sture Frölen. The new seven-story building measures 302 ft. in length and 50 ft. in width. The lower part houses such commercial departments as the purchasing department and the accountants, while the draughtsmen have taken possession of the upper part. As the walls are built in movable sections, in accordance with a new system elaborated by the window department of Götaverken, future space requirements of individual departments can easily be met. Fresh air at a rate of 36,000 cu. m. per hour is supplied by large ventilators; during the winter the air is preheated and if desired also moistened. The old office premises, which are situated within the shipyard area, now serve conveniently as canteens, etc.

The steamer *Othem*, of 1,000 tons d.w. and built in 1914, was sold by Rederi A/B Slite to the Midway Shipping Company at Nassau, Bahamas, for £25,000. Lundgren & Börjessons Rederier at Hälsingborg have bought the motor vessel *Stylehurst*, which is of 9,350 tons and built in 1937. The motor vessel *Bastasen*, with a carrying capacity of 8,767 tons, built at Tampa in 1940, has been transferred by Hagbard Dennel A/B to the Polish Centrala Morska Importowo-Exportowa.

COAL AND OIL

THE IRAQ OIL AGREEMENT

THE AGREEMENT which has been reached between the Iraqi Government and the Iraq Petroleum Company and its associated companies, Mosul Petroleum Company and Basrah Petroleum Company (neither of these has yet reached the production stage but both will soon do so), is the successful culmination of four months of negotiations. These three companies' concessions together cover virtually the whole of Iraq. The outline of the new agreement recently announced by the Iraqi Government shows that an equal sharing of profits between the government and the companies has been agreed upon, with new important safeguards and undertakings which should ensure an undisturbed partnership for many years to come. An important new element is the undertaking given by the oil companies to produce stated minimum quantities of crude oil, subject only to *force majeure* or to circumstances beyond the companies' control. From 1954 onwards Iraq Petroleum and Mosul Petroleum will together produce a minimum of 22 million tons of crude oil a year, and from the end of 1955 onwards Basrah Petroleum will, in addition, produce a minimum of eight million tons a year. The rate of output of Iraq Petroleum and of Mosul Petroleum (the latter is expected to begin oil production in 1953) is necessarily determined by the pipeline and pumping facilities from the fields to the Mediterranean coast. The new minimum quantities correspond to the pipeline capacity already in service, or being constructed, and having its seaboard terminals in Lebanon and Syria. No account, however, has been taken of the existing pipeline from Kirkuk to Haifa or of the nearly-completed parallel 16-inch line, which together could have a carrying capacity of some eight million tons a year. The lifting of the ban on the transport of Iraqi oil to Israel is clearly not part of the Iraqi Government's oil policy at the present time.

50 Per Cent of Profits

The Iraqi Government will receive 50 per cent of the oil companies' profits upon their operations in Iraq, before any deduction for foreign taxes. Full provision is made to cover the contingency that the scale or rate of profits might be below what could now reasonably be anticipated. The Iraqi Government is assured that in all circumstances except *force majeure*, its total income from the oil companies' operations will not be less than 25 per cent of the seaboard value of all crude oil exported by Iraq Petroleum and Mosul Petroleum plus 33⅓ per cent of the seaboard value of crude exported by Basrah Petroleum. As part of its 50 per cent share of profits, the Iraqi Government will be entitled to receive in kind 12½ per cent of all the oil available for export by each of the three companies concerned. The Government has the option of selling all or part of this oil in the open market or of calling upon the oil companies to buy it back at posted seaboard prices. The Iraqi Government will thus have at its disposal about one million tons of crude oil a year on the Mediterranean seaboard at the present time, rising to nearly three million tons by 1954. It will also have about 250,000 tons a year at its disposal on the Persian Gulf when exports from Fao begin next year, rising to one million tons by the end of 1955. In addition to the money income or equivalent crude oil received to give effect to the 50-50 arrangement, the Iraqi Government is entitled to receive whatever quantity of crude oil it may require for treatment in the refinery it intends to erect near Baghdad. This refinery will cater only for inland consumption, which at present is about 570,000 tons a year. The revenue accruing to Iraq under the new agreement should rise from the present level of £15 million to £60 million in 1955.

Shorter Notes

BUNKER COAL prices at Montevideo have been increased to 285s. per ton f.o.b., for American/South African coal, according to a notice from Cory Brothers & Co., Ltd.

MR. LEONARD SINCLAIR has been elected to the board of directors of the Esso Transportation Co., Ltd. This company is responsible for managing a fleet of oil tankers owned by the Esso Petroleum Company and other affiliated companies. It also owns a fleet of tankers operating between Venezuela and Aruba. Mr. Sinclair's portrait appears on page 168.

EXPORTS of coal in the week ending on August 18 amounted to 143,000 tons, and brought the total for the year (33 weeks) to 4,376,000 tons. This compares with a total of 9,327,000 tons for the corresponding period of last year. Bunkers, at 2,369,000 tons for the 33 weeks, show a slight reduction on the corresponding figure for 1950, which was 2,659,000 tons.

A FURTHER increase in the price of diesel oil at ports in the Eastern Hemisphere took place as from August 21. Diesel oil prices are now some 30 per cent above their level a year ago. Examples of the old and new prices, with the prices a year ago, are as follows. The figures quoted are spot prices, ex wharf, excluding taxes, and are in shillings per long ton.

Port	New price	Old price	August, 1950
U.K./near Continent	229s. 6d.	222s.	176s. 6d.
Las Palmas	216s	208s. 6d.	169s.
Port Said	225s.	217s. 6d.	173s.
Colombo	210s. 6d.	203s.	168s.
Cape Town	245s.	237s. 6d.	185s.
Singapore	207s.	199s. 6d.	174s.
Fremantle	245s.	237s. 6d.	190s.
Aden	203s.	195s. 6d.	162s. 6d.

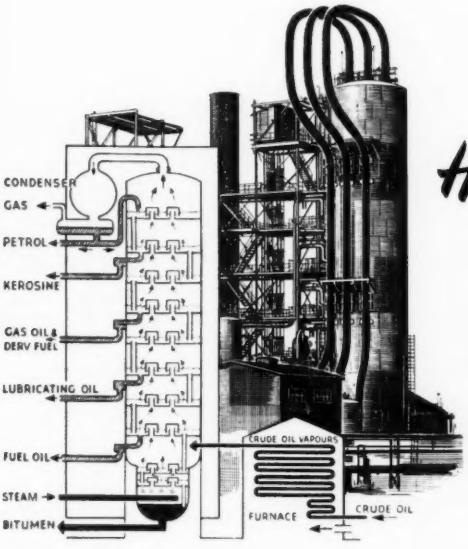
(*Source : Petroleum Press Service*)

DUNDEE HARBOUR BOARD has turned down an application by Shell Mex & B.P., Ltd., for ground at Dundee Harbour for erection of a tanker terminal and storage depot. The basis of the decision, which was carried by a narrow majority, is that the ground involved has been reserved for dry dock purposes since 1945, and could not be utilised quickly for such purposes were it leased on a 20-year basis to the oil company. Members who opposed the decision pointed out that the Government had already indicated no support for a dry dock scheme and that private enterprise would not find the capital.

Slight Decline in Panama Canal Traffic

The net tonnage of vessels using the Panama Canal in the fiscal year ended June 30, 1951, when a total of 5,593 transits aggregating 27,180,000 tons was recorded, represented a decline of 3 per cent below the record year of 1950. While the number of ocean-going commercial vessels passing through the Canal was slightly higher than the previous year's total, small declines were shown in both net tonnage of vessels and tolls collected. According to the *Panama Canal Review*, most of the decline was attributed to a drop in the intercoastal tanker trade. During the previous period a large number of tankers were engaged in transporting oil from the west coast to the Atlantic seaboard. Intercoastal tanker traffic through the Canal in fiscal 1951 was about 2,025,000 tons below the net tonnage of the previous period. Nevertheless, the tanker traffic was more than compensated by the number of other vessels transiting the Canal. Tolls collected on ocean-going vessels of more than 300 net tons for the past fiscal year amounted to $23,906,000, about $525,000 less than the previous year. There was noted a marked increase in trade over several trade routes during the past year. While the tanker trade on the intercoastal run was 62.5 per cent below 1950, traffic other than tankers on the same route increased from 3,203,000 tons in 1950 to 3,287,000 last year, with the net result that intercoastal trade route figures for total traffic were only 30 per cent below 1950. Commercial shipping between Europe and the west coast of the U.S. and Canada via the Panama Canal increased from 2,699,000 tons in 1950 to 3,553,000 tons last year, or a gain of 31.6 per cent. Other notable increases in commercial traffic via the Panama Canal occurred on the trade routes between the east coast of the U.S. and Asia and between Europe and the west coast of South America.

INTERESTING FACTS ABOUT OIL



No. 4.

How is oil refined?

Crude oil at the well head has no commercial application. It must first be treated to make the finished products known as gasoline (petrol), kerosine (paraffin), fuel oil, lubricants, bitumen and many other products less commonly associated with oil, such as cosmetics, matches, insecticides and efficient alternatives to soap.

Distillation is the fundamental principal of oil refining. The process of distillation was probably in use at least 2,000 years ago; Aristotle mentioned it in the 4th Century B.C. In its simplest form it consists of heating a liquid above its boiling range and then cooling the resultant vapours so as to obtain the condensed liquid known as the "condensate" or "distillate."

Today, by a process called "Fractionation" or "Fractional Distillation" crude oil can be split up into various "cuts" or "fractions" which can be recovered separately, each fraction containing all the respective hydrocarbons which vaporize within a particular temperature (boiling) range.

Fractionation is carried out in vertical steel cylinders which may be a dozen feet in diameter and 120 feet high. The crude oil is pre-heated in a furnace and part vapour, part liquid enters near the base of the tower, which is divided into compartments by perforated trays. The hot vapours rise towards the top of the tower through the perforations in the trays which are so constructed that liquid can be collected upon them and the rising gases forced to pass through the perforations. The vapours having high boiling points condense in the hottest part at the bottom of the tower and those with the lowest boiling points pass to the cooler sections at the top before condensing. The lightest fractions pass out still in vapour form and are condensed separately. The various trays are fitted with overflow pipes leading to the tray below so that when sufficient liquid has been collected on any tray, the residue spills over through the pipe to the tray below and the process is repeated. By this means a more exact separation is obtained than would otherwise be possible. The various products can be drawn off from the trays as "side streams," as required—usually the process is carried out in a series of towers, having varying pressures.

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ANGLO-IRANIAN OIL COMPANY LIMITED

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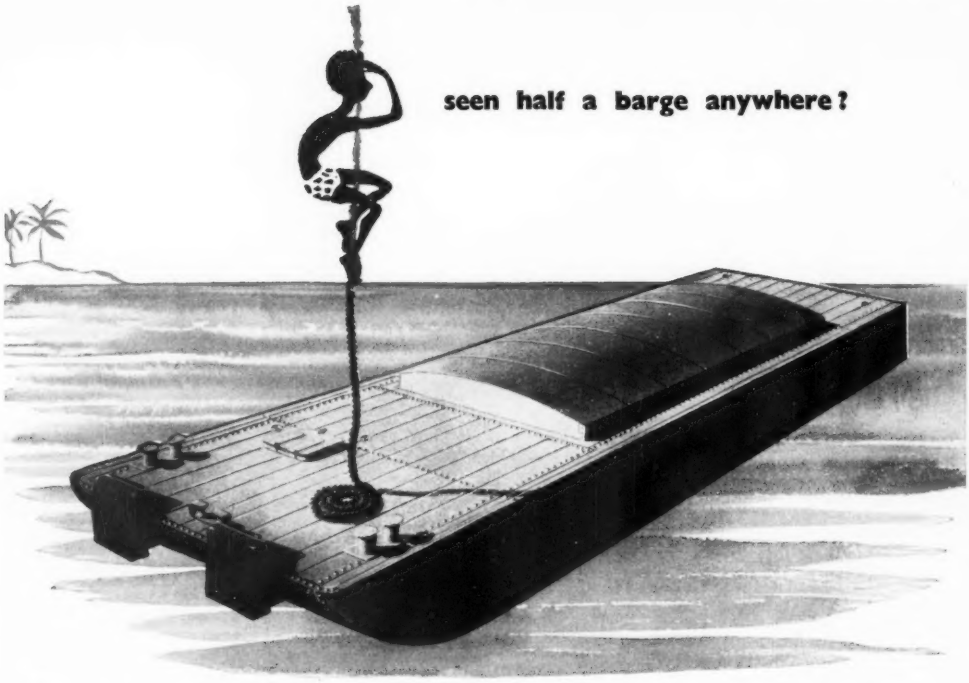


seen half a barge anywhere?

Up on the Congo, local labour is busy assembling some remarkable barges sent out from Britain. First, these 60-ton craft were despatched in halves, for on-the-spot assembly. Second, every bit of every barge is made from extrusions in T.I. Aluminium Alloys (sole exception being the hatch covers).

Several points here warrant attention nearer home than the Congo. The engineers concerned, Messrs. Thorpe Brothers (Bessborough Works) Ltd., have used the manipulative advantages of aluminium with such skill that :—

(a) The cost of construction compares favourably with that of steel.

(b) Assembly has been immensely simplified.

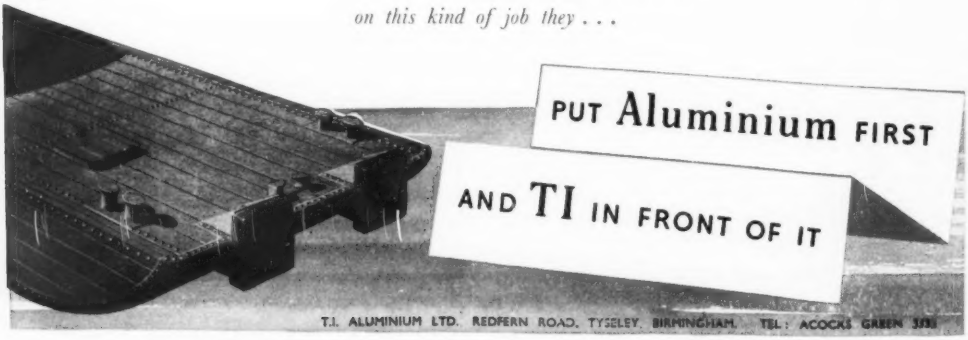
(c) Waste from short ends and off-cuts has been eliminated.

(d) It has been possible to use normal shipyard labour.

(e) Ease of handling (including road transport) has been greatly increased.

Add to these the standard advantages of T.I. Aluminium Alloys — lightness, strength, resistance to corrosion—and judge whether Messrs. Thorpe Brothers, with their client OTRACO, have introduced a valuable new system of marine construction. T.I. Aluminium (who collaborated on the job) are inclined to think so and have produced a booklet on it and will gladly send you a copy.

on this kind of job they . . .



21 YEARS OF BIRMABRIGHT

A FINE RECORD OF ACHIEVEMENT IN THE MARINE AND OTHER INDUSTRIES

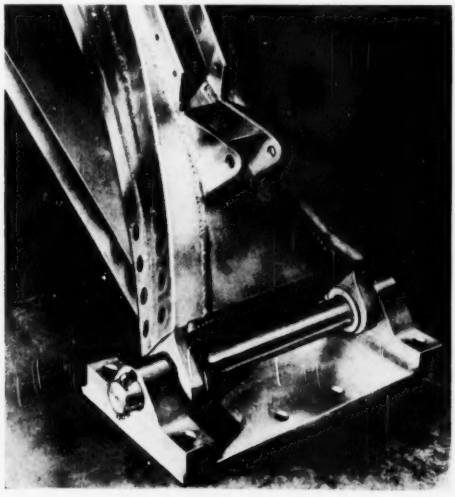
THE STAND "H 14" AT THE ENGINEERING AND MARINE EXHIBITION

TO CELEBRATE the 21st anniversary of the introduction of Birmabright aluminium alloys, a reception was held in London on August 24, a few days before the opening of the Engineering, Marine and Welding Exhibition, at which Birmabright, Ltd., is showing a selection of their wide range of marine applications of light alloys. In a short address at the reception, Mr. L. Player, managing director of the company, referred to the fact that aluminium and its alloys were now accepted as an important group of engineering materials. This was significant at the present time, when man's consumption of non-ferrous metals was rapidly overtaking the means of supply. The workable sources of aluminium and magnesium, however, Mr. Player mentioned, seemed to be inexhaustible and when the time came when his company could obtain all the metal it needed—and in the future it should—there seemed to be no limit to the application of aluminium alloys. Mr. Player claimed that his company had probably done more to develop marine applications of aluminium alloys than any other company or country in the world, not excepting the United States.

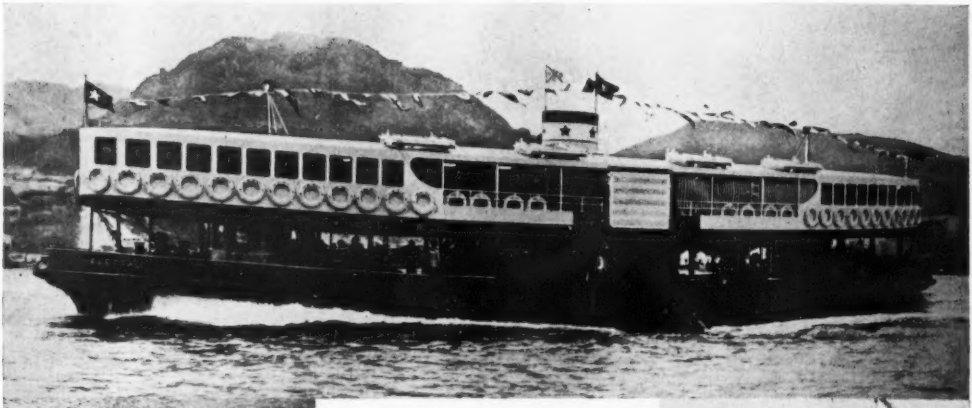
Birmabright, Ltd., has a large stand at the exhibition, which features the company's marine applications, in particular the lining of holds in refrigerated ships, fishroom fittings and linings for trawlers, superstructures, funnels, radar towers, and davits for ships' lifeboats. The application of the Birmabright metals in ships of various types and sizes has become so extensive during the past 21 years that it has now been possible to collect data, illustrations and technical matter for each of six main groups. These are now published in useful handbooks dealing with general marine applications, refrigerated ships, the fishing industry, yachts and launches, ships' lifeboats, and dinghies and small craft, while other handbooks deal with the mechanical and physical properties of Birmabright and the company's special hobnail treadplate.

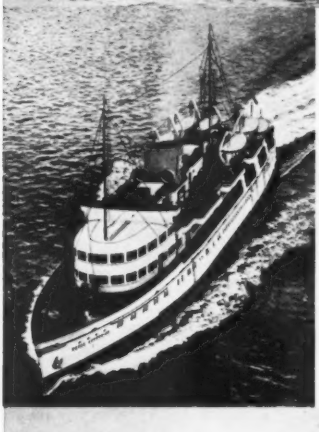
A few examples of the work of the company in the marine field are illustrated in the accompanying photographs, and these and other adaptations may also be seen at the exhibition. Of special interest on the stand is the all-welded crescent type davit, developed by Birmabright, Ltd., in conjunction with Welin-Maclachlan Davits, Ltd., of Glasgow and London. This is for installation in two large vessels for Companhia Colonial de Navigacao, Lisbon, Portugal, now being built by S.A. John Cockerill, Belgium. The saving in weight on this particular davit effected by changing from steel to Birmabright alloys is 52 per cent.

A combined life-saving and painting raft, built of "Birmabright" in Norway

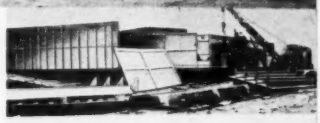


The base of a Welin-Maclachlan "Birmabright" davit showing welding



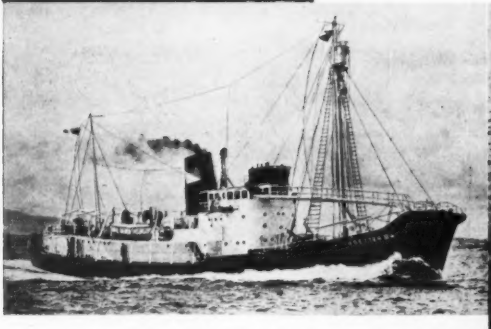


Above: The ferry steamer "Electric Star," with a "Birmabright" superstructure designed to withstand a wind velocity of 175 m.p.h. during typhoons

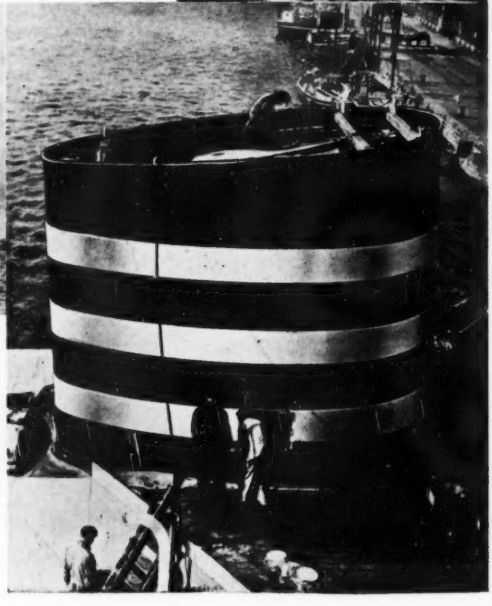


Left: The m.v. "Royal Sovereign," built by Wm. Denny & Brothers, Ltd., with the sun lounge superstructure in "Birmabright"

Right: Erection on the Congo banks of "Birmabright" barges, built by Dowmac (Construction), Ltd.

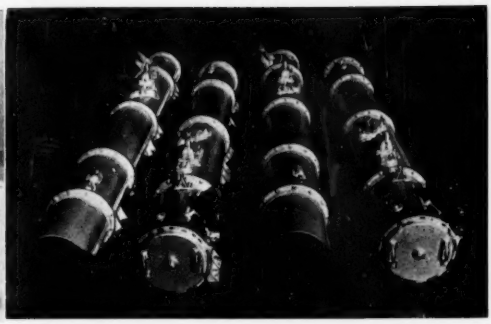


Above: The whalecatcher "Setter III," built by A. & J. Inglis, Ltd., with deckhouse, funnel and bulwarks of "Birmabright"

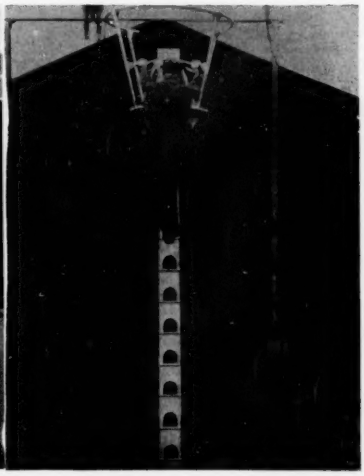


Right: A funnel casing in "Birmabright" built by Aalborg Vaerft A S of Denmark

The M.T.B. P 1602, built of "Birmabright" by Saunders Roe (Anglesey), Ltd.



Torpedo tubes of M.T.B. P 1602 in "Birmabright"



Left: **Trawler trunks in "Birmabright" in use at Lowestoft.** *Right:* **A radar mast in "Birmabright" built by Whittingham & Mitchel, Ltd.**

WORLD PLANS FOR ALUMINIUM PRODUCTION

(*Continued from page* 161)

contracted to build new plants in the oil fields of Texas and Louisiana, respectively. Furthermore, the Kaiser plant has increased its facilities at Mead (Spokane), Washington, by some 20,000 tons of virgin ingot per annum. Government changes in tax relief for the cost of new plant have caused considerable annoyance and may have been the reason for one of the newcomers to the field of virgin aluminium production, Apex Smelting Company, of Chicago, withdrawing from the scheme after considerable planning for production of 54,000 tons annually. The other newcomer, the Harvey Machine Company, is to construct works at Kalispell, Montana, with an annual output of 72,000 tons. Alcoa's commitment is 120,000 tons a year, 35,000 of which will come from the new plant at Port Lavaca in Texas. A further new plan is required for the balance. Sites were explored in the oilfields of the southwest, the coalfields of Ohio and at the Colombia River power scheme at Bonneville in the northwest. The latter appeared the most likely, although objections were raised at each site investigated. However, with no sites available at the new McNarry dam or the Grand Coulee dam, a site near Wenatchee was secured.

Political trouble again confronts the U.S. Government over the question of purchasing metal supplies from the new Alcan project in British Columbia. The Aluminium Company of Canada produce the lowest priced ingot in the world and their offer is most attractive to the U.S. to follow up their present stock piling. Not only this, but a U.S. contract is most important to the economic success of the Alcan project. U.S. producers, however, claim that they, too, need Government help and are most wary of a low-cost foreign product in competition with their own high-cost material. Alcan has offered the U.S.A. 110,000 tons in 1951, 140,000 in 1952, 350,000 in 1953, 530,000 in 1954 and 680,000 in 1955. Earlier this year it was announced that E.C.A. had granted $14 mn. to Reynolds Metals Company to develop the mining of what they term "the most important bauxite body ever discovered in the world" in Jamaica. Now it is announced that a new Marshall Aid loan of $3,284,000 is to be made to this company to increase its bauxite mining capacity from 410,000 to 750,000 tons per annum.

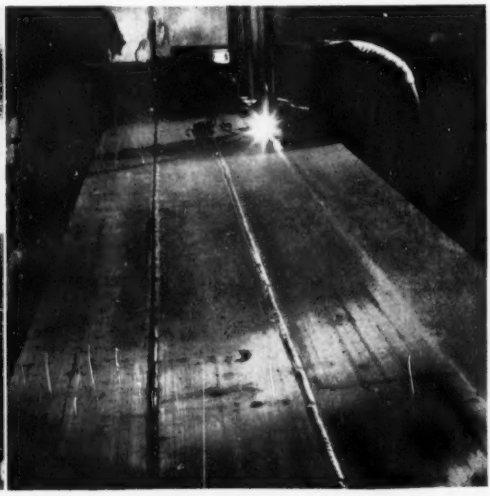
COMPOSITE PLATING IN LIGHT ALLOY

THE USE OF ALUMINIUM PLATES WITH INTEGRAL STIFFENERS FOR BARGE CONSTRUCTION

"COMPOSITE PLATING" is the name given by T.I. Aluminium, Ltd., to a new system of light-alloy construction in which the structural framing is integral with the covering plate. Though fundamentally it is a simple idea, much work has gone into its development, in which the makers pay tribute to the assistance their marine design department has received from Thorpe Brothers (Bessborough Works), Ltd., in giving practical expression to the new constructional principle in the shape of the '51 Barge, now exhibited at the Engineering, Marine and Welding Exhibition. Composite plating (for which patents are now pending) exploits an advantage inherent in aluminium alloys, in that intricate shapes can be extruded to form sections which it would not be possible to roll. With the exception of hatch covers, the '51 Barge has been built entirely from such extrusions, components complete with bulb angles, joggles, etc., which eliminated wastage of material and made further forming unnecessary.

The barges are designed for use on the inland waterways of the Congo in accordance with the general requirements of Otraco (the Belgian *Office d'Exploitation des Transports Coloniaux*). Principal dimensions are: length 77 ft.; beam 11 ft. 6 in.; depth to bottom 4 ft. 6 in.; to carry 60 tons of general cargo in two holds each 30 ft. long. There are three bulkheads—one amidships and one at each end dividing the holds from the end sections. The barges are double-ended, bow and stern sections being identical, with heavy fenders attached so that they can be pushed if necessary instead of being towed in the usual way. Each barge is built from two constructional units, consisting of an end section or peak and a midship section 30 ft. long with a bulkhead between: they are being shipped in halves for assembly on arrival. The barges are longitudinally framed—that is to say, the more closely spaced frames run fore and aft. The stringers are 12 in. apart and extend the full length of the barge, but do not run through the bulkheads (i.e., from section to section); where necessary they are connected through the bulkheads by gussets. The transverse frames are spaced 6 ft. apart between the bulkheads. The panels for the bottom, sides, decks and bulkheads are built up by argon-arc welding from special extrusions which consist of a section of what would normally be the shell plating, with an inverted bulb angle or rib integral with it. The accompanying photographs show clearly how

Composite plating extrusions as used in barge construction



Argon arc welding of composite plating extrusions

About Aluminium... 4

MECHANICAL PROPERTIES · *tensile*

This article is one of a series by which it is hoped to make students more familiar with the nature and properties of aluminium and its alloys. Only the barest outlines can be presented, but these may serve as an introduction to this major structural material.

ALUMINIUM alloys offer a very wide range of properties, from those of the commercially pure metal on the one hand to those of advanced heat treatable alloys on the other. The range between is adequately covered by a large number of alloys, most of which are available in several conditions or tempers.

Behaviour under tension is generally considered the first yardstick of an engineering material, and the figure at the foot of the page shows typical tensile stress/strain curves for three different aluminium alloys and compares them with that for mild steel. The alloys are: commercially pure aluminium (Noral 2S) in the fully annealed state suitable for deep pressing; a 5% magnesium aluminium alloy (Noral A56S) after strain-hardening, by rolling, to the "half-hard" temper; a zinc-magnesium-copper aluminium alloy, known as Noral M75S and used in aircraft construction, after solution treatment and ageing.

Modulus of Elasticity

It will at once be obvious that the strain per unit increase of stress is much higher for the light metal than for steel, in fact the Elastic Modulus is about one third, being between 9½ and 10½ million lb. per sq. in. for most aluminium alloys.

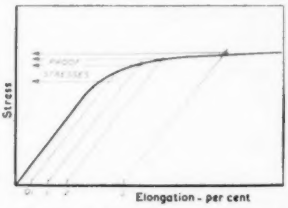
If, to effect a weight saving of 66%, a steel structural member is replaced by one of identical form in an aluminium alloy of equal strength, elastic deflection will be about three times as large. Should this be objectionable, a redesigned member of equal stiffness will weigh about half as much as the steel one instead of a third.

This relatively low stiffness is an advantage under shock or impact loads, which, by virtue of the large elastic deformation, are absorbed well by the aluminium alloys.

Proof Stress

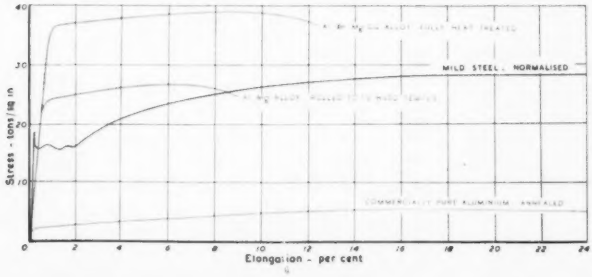
No clearly defined elastic limit or yield point is to be seen on stress/strain curves for aluminium alloys, so the point of departure from the elastic range has to be defined arbitrarily. For convenience in routine testing, a point is chosen at which the permanent deformation is easily measured: in this country, a permanent set of 0.1% of the original gauge length, abroad more usually 0.2%. To mark the limit of proportionality closely, 0.01% set is sometimes used.

The stress at which a 0.1% set is observed is called the 0.1% *proof stress*, and, because it reveals the onset of plastic movement, is often of more value to the designer than is the ultimate stress.



The figure above shows how it is obtained from a stress/strain diagram.

Some alloys, notably the heavily strain-hardened ones, have a high ratio of proof strength to ultimate strength; in 2SH for example the 0.1% proof stress is 9 tons per sq. in. and the ultimate stress 10 tons per sq. in. Generally the ratio of proof to ultimate varies from 35% for soft tempers to 90% for the hardest; in the fully heat treated alloys it is about 80%. Although a high proof stress is in itself an advantage, a high proof stress/ultimate stress ratio implies a low ductility.



Elongation

The amount of permanent stretch at the instant of breaking is a useful guide to the ductility of a metal, and a minimum value is usually demanded by light alloy specifications. It is not, however, an infallible index of workability, and selection of an alloy for forming operations should never be made on this basis alone.

Elongation may be found by clamping the pieces of a broken test specimen together and measuring between marks applied before starting the test. It is generally expressed as a percentage of the original gauge length of the test specimen. Elongation is not equal everywhere in the specimen but is greatest around the fracture; the gauge length chosen will therefore affect the value very much, and is always specified.

A gauge length of 2 inches is a common standard in this country. For better comparison of different sized specimens, the length may be referred to the original cross-sectional area; thus $4\sqrt{\text{Area}}$ is frequently used, especially for round sections. In Europe, gauge lengths of $11.3\sqrt{\text{Area}}$ and $5.65\sqrt{\text{Area}}$ (equivalent to 10 and 5 diameters for round specimens) have long been standard.

Typical elongation values for aluminium alloys vary from 35% (on two inches) in annealed material to as little as 3% in fully strain-hardened metal. The heat treated alloys, even the strongest, possess a fair elongation, ranging from 9% to 20%.

Strength/weight ratio

It will be seen that the strength of an aluminium alloy may exceed that of mild steel. If the weight of the two materials has to be considered, aluminium is able to compete with the high-tensile steels.

A rough indication of the structural merit of a material, at least under tension, is given by its *specific* 0.1% *proof stress*. This empirical figure, useful only for comparison, is obtained by dividing the 0.1% proof stress by the specific gravity. A similar idea is sometimes expressed as the length of uniformly cross-sectioned rod of a material that could be suspended before it broke under its own weight. On this basis, a commonly used alloy of the heat treatable type, Noral 26S, is over three times as effective as mild steel.

The fifth article in the series will touch on some other mechanical properties.

NORTHERN ALUMINIUM COMPANY LIMITED
TECHNICAL DEVELOPMENT DIVISION · BANBURY, OXON

Holding a master's ticket

S.7

DURALUMIN 'H'

REGD. TRADE MARK

The possession of a Master's ticket is proof that the holder is equipped with the necessary knowledge to bring his ship safely to port. The materials of shipbuilding, too, must satisfy stringent tests before they can safely be employed. That is why shipbuilders are glad to have available "Duralumin H", a reliable alloy particularly suited to marine conditions. This particular alloy must not be confused with some others in the "Duralumin" range, which contain different alloying elements. These have their own special merits for certain applications, but not always where exposure to seawater is concerned.

"Duralumin H" has been fully proved in use: it resists corrosion, is non-magnetic and discourages marine growths. Its use saves weight and power, and reduces maintenance costs.

Our Development Department will gladly give full information entirely without obligation.

JAMES BOOTH & COMPANY LIMITED BOOTH BIRMINGHAM **ARGYLE ST. WORKS · BIRMINGHAM · 7**

Monthly Light Alloys Section

the panels are built up by welding and riveting the special sections used. These were delivered cut to exact length, thereby eliminating not only a great deal of work by builders, but much waste of material in short ends and offcuts. All extrusions were made to B.S.1476.HE10WP (T.I.A.44), supplied in the fully heat-treated condition. The alloy also meets the provisional requirements of Lloyd's Register and the Admiralty.

A summary of the advantages of this method of construction indicates the way in which T.I. Aluminium have tackled the problem of competing with steel construction by concentrating on the reduction of manufacturing costs.

1. Fabricating is eliminated by the production of ready-made components, such as the panels with inverted bulb angles, in one integral piece.
2. Joggling is similarly unnecessary, since joggled contours are incorporated in the extrusions.
3. Forming by the builder (as in the case of rounded bilges) is dispensed with by the production of special sections to the required radius.
4. Lining-up is no longer required, as extrusions are supplied to close tolerances designed to interlock.
5. Waste is avoided by the same means—an important point, in view of the relatively high cost of the material.
6. Lifting and transportation problems are simplified on account of the comparatively light weights involved.

Quite apart from the advantage of this method of using light alloys, there remains their intrinsic advantage of resistance to corrosion by marine atmosphere and salt water, which results in a saving in maintenance that, over a number of years, can make good the additional cost of material, even in craft constructed by orthodox techniques.

Aluminium Hatch Cover for Tankers

The Washington Aluminium Co., of Baltimore, Md., has been granted a patent for a new type of oil tanker hatch cover to be known as the "Airlok." Increased demands for improved safety apparatus on petroleum carriers led to the development and addition of this new lightweight cover to the company's range of aluminium marine equipment. Fabricated of non-sparking aluminium, which provides an extra guard against explosions, the new hatch cover will provide a total closure against fumes originating in tanker cargo compartments and can be installed at costs competitive with steel hatch covers, it is claimed. Features of the new "Airlok" include an inflated neoprene tube in place of the usual flax gasket, providing a complete seal for an extended period of time. The non-corroding aluminium cover, 48 in. in diameter, weighs only 150 lb, and can be raised and lowered by two men without the aid of rigging. During the filling operation, dogs on the "Airlok" can be left in the down position, and with the sealing tube inflated, maintain absolute security.

WORLD PLANS FOR ALUMINIUM PRODUCTION

RAPID DEVELOPMENT OF NEW BAUXITE SOURCES AND FACTORIES

By a Special Correspondent

WITH the growing shortage of basic materials it is reassuring to note that worldwide plans are being made to increase the supply of aluminium. The increasing application of this metal in shipbuilding and ancillary trades has helped to create a demand which outpaces supply, and while the British Government are considering comprehensive plans forwarded by the industry, other countries are going ahead with plant expansion and new construction.

German production, much in the news recently, is to exceed the most optimistic expectations this year. This is owing to the lifting of restrictions by the Allied High Commission and the expansion at Toeging. As many as 160 cells had been dismantled at this reduction works but 60 of these have now been put into operation once more and an annual rate of production of 40,000 tons of ingot is now expected. With the opening of the Ranshofen aluminium plant Austria becomes self sufficient in her supply of semi-finished products. Surplus production will be exported against supplies of bauxite and other items required for the industry. The reduction works at the same place have used an improvement in electricity supplies to increase output to 16,000 tons per year. The Salzburg works at Lend continue to increase production and both Austrian factories should be producing 22,500 tons of virgin aluminium in 1951, an increase of 4,400 tons on last year.

Spanish output is also dependent, within its limitations, on the power supplies available which have improved in recent months. Of relatively minor importance, the increase in production amounts to about 100 tons per month which is, however, over one-third the monthly total last year. There is nothing small, however, in the Spanish plans for a new aluminium products factory which British, Canadian and Swiss technicians are assisting to build. The plant will be the third largest in Europe and will handle a high percentage of marine products from heavy plate for shipbuilding to castings of naval fittings and propellers.

The Balkans are also in the news with details of the proposed Greek aluminium industry. The Greek Government has estimated that the Eleusis bauxite mines have reserves of about 2,000,000 tons. At first the bauxite will be shipped to Germany, but Swiss engineers report that 80,000 tons of alumina could be produced annually in Greece, and when hydro-electric projects have been completed its reduction to ingot could be effected locally. Fuller details of the recent Yugoslavian survey are now available. The four areas of bauxite mining are estimated to have a reserve of over 100,000,000 tons of high grade ore. This is red bauxite of the type used by U.K. producers from the south of France. Yugoslavia has always been a bauxite exporter and only created a local fabricating industry in the later 'thirties. The Germans, during the war, started many schemes and the completion of these is a major part of the Yugoslav five-year plan.

The Norwegian Government has announced preliminary agreement with E.C.A. for the establishment of the new Sunndalsora reduction works (output to be 40,000 tons per annum). The amount involved totals some £22½ mn., about half of which will be provided by E.C.A., and includes the cost of enlarging the hydro-electric power station at Aura.

The Indian Aluminium Company is reported to be negotiating for more power supplies from the Hirakud project, which is yet a further indication of the lively expansion of the aluminium industry in India. The Australian Aluminium Commission's reserves of bauxite are estimated to be 8,600,000 tons. Work proceeds on the erection of the huge aluminium works at Bell Bay in Tasmania and orders have been placed in Norway for building materials.

Bauxite deposits in the island of Palau, estimated at 5,000,000 tons, may be exploited by the Japanese. If the current annual rate of production is maintained at 36,000 metric tons this will be sufficient for 30 years' supply. It is rumoured that representatives of the Aluminium Company of America (Alcoa) are visiting Japan to promote a tie-up between the aluminium industries of the two countries.

The U.S. Government's requirements for about a 60 per cent increase in U.S. aluminium output to 1,000,000 tons in 1952 has caused some anxiety within the industry. In some cases it has caused uneconomical sources of production to recommence working, such as the wartime Alcoa facilities at Massena, N.Y., and Badin, N.C. Reynolds and Kaiser, each having to produce an additional 100,000 tons annually, have

(*Continued on page* 159)

DANISH SHIPPING AND SHIPBUILDING

SHIPPING INDUSTRY'S TAXATION CONTRIBUTION

By THE SHIPPING WORLD'S Own Correspondent

THE Danish Steamshipowners' Association has received the news from the Minister of Finance, Mr. Thorkil Kristensen, that the Government accepts the owners' offer of 15 million kroners tax. When the Minister made his proposals for improving the finances of the State he reckoned with a contribution from the shipowners, and negotiations between the parties resulted in an offer from the owners of 15 million kroners, which has now been accepted. It is not stated how this amount is to be paid, but it is expected it will be paid in cash. The shipowners' association is supervising the apportionment on the basis of the average deadweight tonnage of the various owners in the first quarter of 1951, but only for vessels of 1,500 tons deadweight and above.

Mr. Svend Moller, under-manager of DDPA (Danish Esso), and head of the shipowning department, has retired at the age of 65. Mr. Moller joined DDPA as a boy of 15 and after some years became secretary to the manager (Consul General Christian Holm). Since 1924 he has been employed in the shipowning department and in 1937 he was appointed under-manager. Mr. Moller's place will be taken by Mr. Steen Carstensen, who joined DDPA in 1939, having retired from the Danish Royal Navy. He will be in charge of a fleet consisting of three ocean-going tankers and a number of smaller vessels totalling more than 50,400 tons. The head of the inland trade and Iceland and Faroe Isles department of the United Steamship Company of Copenhagen, Mr. Emil Olsen, has been appointed as sub-manager in the company. The management is now made up as follows: administrative manager Mr. J. A. Korbing, manager Mr. L. O. Normann, sub-managers G. Andersen (foreign department), H. G. Garde (passenger dept.), H. Qvist (technical dept.) and Mr. Emil Olsen (inland and Iceland and Faroe Isles). Mr. Olsen, who joined the United Steamship Company in 1924, is mainly responsible for the modernising of the loading and discharging methods, the new "container" ships and the arrangement of the new vessels on the Aarhus and Aalborg routes enabling them to do two trips a day.

Harbour Extension

The Norresundby Town Council has accepted a plan for the extension of the harbour which will cost about Kr. 2½ million (about £125,000). Included in the project is a 220-metres asphalted quay with railway lines and two cranes. In addition, a space of 3,100 square metres for storage and warehouses is included in the plan. The extension is based on a depth of water of 7.8 metres, but the project allows for a later extension to 9 metres if the approach over Hals Barre is deepened. The two cranes are estimated to cost Kr.500,000.

Of the Liberty vessels which were bought after the war by Denmark from America to help the shortage of tonnage only two remain, namely the United Steamship Company's *Nevada* and *Oregon*. The East Asiatic Company has recently sold its *St. Jan*, *St. Thomas* and *St. Croix* to Panamanian buyers and the Dansk-Franske D/S has sold its *Gronland* to similar buyers. Liberty vessels previously sold abroad were A. P. Moller's *Else Mærsk* and *Ellen Mærsk* and J. Lauritzen's *Tora Dan*. At an extraordinary general meeting of Det Ostbornholmske Dampskibsselskab A/S it was agreed to increase the share capital from 280,000 to 530,000 Danish Kroner.

There are at present 25 vessels totalling 116,390 tons gross under construction in Danish yards. Among these there are only two steamers, totalling 4,365 tons, the remainder being motorships. Five of the vessels, totalling 50,270 tons gross, are tankers. With regard to size, eight of the vessels are under 2,000 tons gross, eight between 2,000 and 6,000 tons and nine between 6,000 and 15,000 tons gross. Ten of the vessels, totalling 56,165 tons gross, almost half the total, are building for foreign account; four for Norway, three for France, two for Russia and one for Iceland. Besides the 15 vessels totalling 60,225 tons gross building in Denmark for Danish account there are seven vessels totalling 34,718 tons under construction abroad for Danish account.

Launch of the "Jeppesen Mærsk"

H. C. Christensen's Staalskibsværft at Marstal has launched the first cargo vessel completely built with Danish steel. She is building for Mr. Albert H. Jensen of Vejle, and is of 230 tons deadweight and 148 tons gross. She is building with loans from the Marshall Aid rebuilding fund and is to be employed in home and Baltic trading. On August 9 Burmeister & Wain's yard at Copenhagen launched the motor cargo liner *Jeppesen Mærsk* for Mr. A. P. Moller, of Copenhagen. She was launched by the American Ambassador, Mrs. Eugenie Anderson. In a speech following the launch Mr. A. P. Moller gave the following explanation as to the name of the ship. "The name *Mærsk* which all our ships carry is from my father, Capt. Peter Mærsk Moller. When he and I contracted our first little ship in 1905 we named her *Peter Mærsk*. The next was named *Anna Mærsk* after my mother, the third *Chassie Mærsk* after my now deceased wife, and so on. The name Jeppesen is from my mother's father, Capt. Hans Nielsen Jeppesen, and when I name this ship after him it is really a gesture of repentance. One day when I was a boy my grandfather found me where I should not have been and gave me a hiding. This annoyed me very much, and when a little girl the next day came and said that I need not be so cocky any more because my grandfather was drowned my first exclamation was 'hurray, I must go home and tell mother.' When I found my mother crying I naturally changed my idea but I think it was many years before the family forgave me for shouting 'hurray' when grandfather drowned. The *Jeppesen Mærsk* can symbolise my repentance. The vessel will be put into service on the route between U.S.A. and the Far East and is to earn dollars for Denmark, and you will no doubt agree with me that this is in American as well as Danish interests. It must by now be clear to everybody that it is better for the world and U.S.A. that other countries which are poorer in natural resources get an opportunity to EARN dollars in preference to have them given so that they are a burden to the American taxpayer." The *Jeppesen Mærsk* is a sister ship to the *Nicoline Mærsk*, of about 9,500 tons deadweight.

Safety of Life at Sea

The U.S.S.R. has recently deposited with the Foreign Office its acceptance of the revised Collision Regulations agreed on at the 1948 Conference on Safety of Life at Sea. Acceptance of the International Regulations for Preventing Collisions at Sea, 1948, have now been deposited by 29 countries, namely: Australia, Belgium, Brazil, Burma, Canada, Chile, Denmark, Dominica, Ecuador, France, Greece, Iceland, India, Iraq, Ireland, Italy, Mexico, Netherlands, New Zealand, Nicaragua, Pakistan, Poland, Spain, Sweden, Turkey, Union of South Africa, United Kingdom, U.S.S.R., Yugoslavia.

The total tonnage of the merchant fleets of these countries amounts to over 40,000,000 tons gross. In accordance with the decision reached at the International Conference on Safety of Life at Sea, 1948, the date on and after which the Regulations must be applied by the Governments which have accepted them will be fixed by the Government of the United Kingdom when substantial unanimity has been reached as to acceptance. It is hoped that this stage will be reached shortly.

ENGINEERING, MARINE & WELDING EXHIBITION

AN IMPRESSIVE DISPLAY OF WELDING EQUIPMENT MATERIALS AND ACCESSORIES

A SPECIAL section of the Engineering, Marine and Welding Exhibition features a display of welding equipment. Demonstrations of welding equipment range from submerged-melt welding equipment manufactured by Quasi-Arc Co., Ltd., to argon arc welding of aluminium alloys, magnesium, copper, stainless steel and heat resistant nickel alloys by the British Oxygen Co., Ltd. With the submerged arc welding process visitors are able to watch the plant actually welding steel plate with no danger from arc rays and without having to look through coloured glasses. British Cutting Gases, Ltd., give regular demonstrations of underwater cutting, using equipment designed and manufactured by one of their associated companies. New automatic arc welding equipment is shown by ASEA Electric Co., Ltd., and an entirely new profiling machine is displayed by Hancock & Co. (Engineers), Ltd.

An interesting exhibit by Kelvin & Hughes (Industrial), Ltd., is a supersonic flaw detector which is used for the non-destructive test by ultrasonic sound waves on iron, steel and non-ferrous metals. The results are presented on a cathode ray tube and the detector operates from $\frac{1}{2}$ in. to approximately 12 ft. below the surface. A productivity team visited the U.S.A. last autumn under the auspices of the Anglo-American Council on Productivity, to study welding. Special arrangements were made for the publication of the team's Report to take place during the exhibition. The team also held a meeting at Olympia during the Exhibition. Among the welding exhibits the displays of the following companies may be mentioned.

Welding Exhibits

CROMPTON PARKINSON, LTD.—The Nelson method of and equipment for stud welding. The gun used is button operated and so arranged that 14 studs can be welded in the time normally taken to drill and tap one screwed stud. The welding cycle is automatically timed independent of the welder's judgment. The demonstration includes a new method of securing ships' planking developed following the introduction of the maker's stud welding system. Also displayed are "Young" marine batteries, C.P. electric motors, electrical measuring instruments, cables, lamps and lighting fittings.

G. A. HARVEY & CO. (LONDON), LTD.—Display of heavy industrial and marine manufactures, including plant in welded stainless steel, monel, nickel, clad and mild steels. These include pressure vessels of all sizes, turbine casings and engine frames. Special exhibit of cold-rolled rings, flash butt welded. The makers are able to roll bars cold up to 16 by 6 in. joist and 12 to 1 in. flat. Display of the range of "Harco" perforated metals for sifting and grading, radiator covers, pipeguards and ventilating grilles. Also wire woven cloth for vibrators and other purposes.

GENERAL ELECTRIC CO., LTD.—Portable single-phase and twin-phase arc welding sets. The latter development in A.C. welding plant is regarded by the makers as an outstanding advance in such equipment and has been designed to take a balanced three-phase load from the supply at a high power factor without the additional expense of a power factor correcting capacitor. The twin-arc set can also be used as a normal double operator unit with independent control for each welder, a voltage changeover switch being provided to give 45 or 60 volts on the secondary terminals. Arrangements are now in hand between the General Electric Co. and the Quasi-Arc Co., Ltd., whereby the latter will become sole concessionnaires for this equipment.

MUREX WELDING PROCESSES, LTD.—The new exhibits on this stand include a 50-amp transformer welding equipment, a 250-amp transformer equipment, a low voltage device for A.C. welding equipment and some new types of electric arc welding electrodes. Also included in the display are some engine-driven arc welding sets with cutaway sections to show the working of the internal components. The range of electrodes shown covers over 70 different types.

LINCOLN ELECTRIC CO., LTD.—The range of Lincoln arc welding equipment includes the new electrodes "Multiweld," "Positionweld" and "Fleetweld 5." The latter is used almost exclusively, the makers report, in pipelines and oil refinery work throughout the world. The Lincoln machines on display include the SA 150 motor generator, SA 150 generator, SA 200 petrol-driven welder, SAE petrol-driven welder and fully and semi-automatic submerged arc welding equipment.

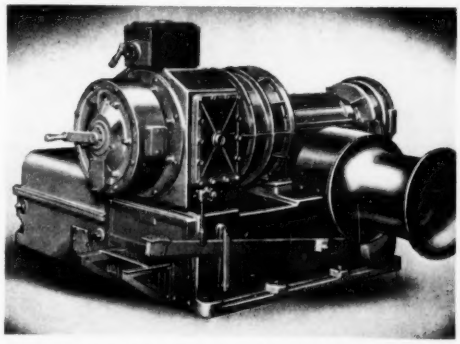
ROCKWELD, LTD.—Among the exhibits is a new welding generator for direct current with independent current and voltage control. This is a diesel-driven set, the generator of which is self-excited and gives a stepless current range of 40 to 300 amps at standard A.C. voltages. The single-operator A.C. welding plants comprise four machines with maximum welding currents of 160, 300, 400 and 600 amps. Also shown is a complete three-operator equipment with a 57 kVA three-phase transformer and three 350-amp regulators. The range of electrodes includes those developed for the welding of stainless and heat-resisting steels. Also a new type of mild steel electrode, named "Silvac," designed to give ease in overhead welding.

Exhibits of Auxiliary Equipment

BECKETT, LAYCOCK & WATKINS, LTD.—"Sunwat" promenade screen, "Galewat" and "Stormwat" cabin, "Weatherwat" and "Promwat" bridge front and promenade screen, and "Beclawat" fixed, hinged-fanlight and heavy duty windows.

BRITISH INSULATED CALLENDER'S CABLES, LTD.—Selection from the range of BICC shipwiring cables, including varnished cambric, impregnated paper, vulcanised rubber and fire-resisting insulation. Also silicone rubber insulated cables and flexibles. A selection of tough rubber sheathed welding cables. Copper busbars and typical medium-voltage insulated supports for heavy current busbars. A wire rope parting machine which operates so that the ends of the rope are sealed and left in tapered form.

BRITISH THOMSON-HOUSTON CO., LTD.—"Mazda" industrial fluorescent fittings and decorative tungsten lamp fittings for marine lighting. Typical bulkhead and deckhead units. Also demonstration in a cabin of fluorescent cornice lighting. Radar cabin illumination by three floodlights used for



Scott "N.S." electric cargo winch with variable speed A.C. motor, manufactured by Laurence Scott & Electromotors, Ltd.

floodlighting bridges and superstructures. Display of new reflector and bare-lamp "Mazda" fluorescent fittings. Also blended light unit housing two mercury vapour and one tungsten lamps designed specially for high bay lighting. Other fittings include "Mazda" eyeball spotlights.

BROOKHIRST SWITCHGEAR, LTD.—A range of new designs of A.C. and D.C. motor starters for industrial and marine service. Hand operated and automatic starters for wall or floor mounting. A selection of accessories and a typical section of the maker's "Unibord" (unit-built) motor-control equipment.

S. G. BROWN, LTD.—The S. G. Brown stand shows a range of the latest gyroscopic compass and automatic helmsman equipment, which includes the maker's TYPES A and B gyro-compasses. Special interest attaches to two new types, which

are totally enclosed self-contained unit compasses, designed to operate as many repeaters as may be required. Another new type is the B1 gyrocompass, which is totally enclosed and provides an optical system for direct reading.

DECCA NAVIGATOR CO., LTD.—Complete Mark IV equipments assembled as transportable units for short term requirements in ships. Also Mark V equipment convertible for use on five Decca chains.

DUNLOP SPECIAL PRODUCTS (ENGINEERING COMPONENTS) AND GENERAL RUBBER GOODS DIVISION.—A range of precision rubber engineering components including flexible power transmission couplings, anti-vibration mountings for instruments and machinery, suspensions and hydraulic seals. Also a large moulded rubber product with fabric insertion for use in joints in engine cooling pipes in ships. This expansion joint measures 12 in. wide by 32½ in. overall diameter with a 24-in. bore.

CLARKE, CHAPMAN & CO., LTD.—A complete range of equipment for ships, including steam, electric and hydraulic winches, pumps, wire stoppers, steam generators, electric lighting and power installations, belt conveyors, searchlights, capstans and windlasses. Among several new items of equipment never before exhibited are a senior "Cyclops" steam cargo winch with gearing enclosed in oil baths, an alternating-current geared squirrel-cage motor-driven cargo winch, a hydraulic cargo winch, and an electrically driven topping winch.

EVAN COOK'S PACKERS, LTD.—All types of export packing for heavy machinery and electric or scientific equipment.

Marine and Industrial Batteries

D. P. BATTERY CO., LTD.—Batteries for all industrial and marine purposes. Exhibits include all latest developments in the "Kathanode" range of batteries for ship and emergency lighting, engine-starting and auxiliary duties.

ELECTROMAGNETS, LTD.—A range of both permanent and electromagnetic separators including overband separators, magnetic chutes, and swarf separators.

GENERAL REFRACTORIES, LTD.—A range of magnesite and chrome-magnesite bricks for open-hearth, electric and reheating furnaces. Special exhibit of "Ferroclad" metal-cased chemically-bonded basic bricks in which the steel casing and brick material are pressed together by hydraulic pressure.

KEITH BLACKMAN, LTD.—The exhibits include an air conditioning unit, a 33-in. axial type fan for use in refrigeration or ventilation, a 60-in. axial type fan impeller, a 20-in. type S blower, a dust-exhausting and collecting unit, a 30-in. man-cooling fan for use in hot working spaces, a 24-in. propeller type fan and a centrifugal type fan.

KELVIN & HUGHES, LTD.—A Type 2 radar installation with scanner and auxiliary display unit, embodying a new scanner which gives greater range and improved resolution. Also echo sounders, sextants, pneumercator tank gauges, stability and trim indicators and radio current meter.

LAURENCE SCOTT & ELECTROMOTORS, LTD.—Winch exhibits include the Scott "N-S" cargo winch with variable speed A.C. motor and Scott "Dynamic" electric cargo winch for D.C. current. The Scott "Whippet," a small constant speed whipping unit, with full load of 4 cwt. at 200 ft. per minute is also shown. The electric motors on show include the "Air-stream," "Trislot" high-torque squirrel-cage motor and the "Floating" motor in association with the "Speed-master," a single-unit variable frequency converter. Also the "N-S" converter for providing a low-frequency supply for gearless low-speed motors. Three examples of N-S" varibale speed A.C. motors are also shown.

Pumps and Compressors

MEGATOR PUMPS & COMPRESSORS, LTD.—One Type M pump mounted on a tank to show operation. A Megator diesel-driven firefighting and general service pump. A marine pressure set for use with either fresh or seawater pressure systems, using a Type M vertically driven pump. The pump can act either as a pump or compressor. The new type AL pump designed for direct mounting on marine engines for bilge pumping or seawater circulation.

MODERN WHEEL DRIVE, LTD.—Working model of one of the company's S.L.M. oil-operated multi-engine reverse reduction main propulsion gears. Also other examples from a range of oil-operated marine gears, rotary compressors and vacuum pumps.

MONO PUMPS, LTD.—A range of positive rotary self-priming pumps, with one pump shown in operation with suction uncovered. The new Mono pump automatic water pressure system for fresh and sanitary supplies. Also the twin E4 pump consisting of two pumps each with a capacity of 1,250 gallons per hour. The D6 pump for general service and the VM10 vertical marine type for special duties.

PHOTOSTAT, LTD.—Photostat and "Statfile" machinery for copying documents and plans. Also "Duostat" auto-positive document paper giving a positive, that is black lines on white paper, in one stage.

POWER PLANT CO., LTD.—Exhibits include a turbine reduction-gear reducing speed from 10,000 to 1,500 r.p.m. and transmitting 1,000 kW. and a pair of winder gears for transmitting a peak load of 3,670 h.p. with speed reduction of 408 to 49.3 r.p.m.

RAWLPLUG CO., LTD.—A range of fixing devices and tools including Rawlplugs. Also included are Rawlbolts or metal expansion bolts for use in fixing down machinery. Examples of use are in constructing aluminium alloys trestles and ladders.

ROZALEX, LTD.—A range of "Rozalex" barrier-preparations for use by operatives to combat occupational diseases such as dermatitis. Also types of dispenser.

SHARPLES CENTRIFUGES, LTD.—Exhibits include the Sharples marine oil purifier and super centrifuge. The latter incorporates a tubular type of bowl. The model shown incorporates a new one-pass bowl which enables the purification and clarification of heavy fuel and boiler oils to be accomplished in a single stage by one machine. Also the Sharples portable oil purifier, stationary oil purifying equipment, open type super-centrifuge and "Vaportite" super-centrifuge. The "Vaporseal" clarifier, laboratory super-centrifuge and Super-D-Canter. The latter is a new type of solid basket centrifugal for handling continuously any suspension of fine crystals or amorphous solids in a liquid.

SILENTBLOC, LTD.—Range of flexible bearings and couplings, and antivibration mountings. Also samples of rubber covering work such as on condenser doors.

SPERRY GYROSCOPE CO., LTD.—The principal feature of the Sperry stand is a rotating representation of a ship's bridge some 12 ft. wide by 8 ft. deep. On this is installed the latest development in marine steering control gear, the Sperry electric and automatic steering control, which in effect controls the rotation of the bridge. With this control in "hand" and "automatic," an oscillating motion is given to the system so that if no further action, human or automatic, is taken, the bridge slowly yaws through about 20 degrees. However, when in "hand" it is possible for visitors to "try their skill at steering" by correcting the yaw, using the steering wheel on the electric and automatic control. When in "automatic" the gyro compass, also installed on the bridge, automatically corrects the yawing through the medium of the control. Finally, the "auxiliary" feature of this equipment can be demonstrated when the pulling of the auxiliary control switch to port or starboard causes the bridge to rotate in the appropriate direction.

Steel Equipment and Fittings

STEWARTS & LLOYDS, LTD.—The maker's electric resistance weld boiler tubes are being exhibited for the first time. Also examples of twin tubular derricks, and illustrations of davits, masts and shear legs. Other exhibits include manipulated pipework, "Victaulic" joints and "Viking Johnson" couplings, welding fittings and steel castings.

TUDOR ACCUMULATOR CO., LTD.—A range of types of batteries for marine and industrial applications. Exhibits include a sectioned half-ton submarine battery cell.

UNITED STEEL COMPANIES, LTD.—Display of the varied and modern plant in operation in the steel works of the company and range from strip of 1/1,000th in. thickness to slabs of 17 in. thickness. Also refined irons for all foundry purposes.

WARERITE, LTD.—Display of decorative materials in laminated plastics and veneered board.

Pioneer Firm Expands in Gulf

Fowler & McVitie, Inc., ship agents and stevedores, is one of the pioneer steamship firms in the U.S. Gulf. Founded over 80 years ago, this firm has, heretofore, specialised in agency and stevedoring in Texas only, but is now prepared to give complete general agency coverage of the entire Gulf. It has just established an office in New Orleans, Louisiana, at the following address: Fowler & McVitie, Inc., International Trade Mart, New Orleans 12, La. On January 1, 1949, the old firm was incorporated, and the present directors are Chas. R. Crocker (president), Harden F. Wittig (vice-president) and J. J. Mensman (secretary/treasurer). Fowler & McVitie inaugurated many liner services through the years of the firm's existence. The company is in the process of soliciting shipowners for liners, in order to build up a new conference service. The address of their headquarters is Cotton Exchange Building, Galveston, Texas.

WELDING PRODUCTIVITY REPORT

Shipbuilding Methods in the U.S.A.

THE Anglo-American Council on Productivity has published the report prepared by a team which visited the United States in 1950 (price, 3s. 6d.). The team was led by Dr. H. G. Taylor, director of research of the British Welding Research Association, and included Mr. H. H. Hagan, director of Lobnitz & Co., Ltd., representing the Shipbuilding Employers' Federation, Mr. E. J. Hill, representing the Confederation of Shipbuilding & Engineering Unions, and Mr. H. L. Sutherst, Lloyd's Register principal surveyor for the Port of London. The report states that in the U.S.A. great attention is given to planning and routing of work and materials, greater use is made of mechanical aids to assist or eliminate manpower, and greater use is made of automatic welding machines of all types. There is little of outstanding importance to be learned in regard to technique. It was noted that there is a general willingness among workers to perform ancillary operations. For example, a plater will tack weld, chip, gas cut and sling a job in addition to doing his assembly work.

With particular reference to welding used in shipbuilding, generally speaking no startling differences were found between the shipbuilding methods in the U.S.A. and those in Britain. Each of the three yards visited was originally laid out for riveting, and most of the normal size prefabricated units were assembled in the open. The firms used welding throughout, except on the large tankers, where the bilge strake was riveted top and bottom, the sheer strakes top and bottom, and two longitudinal seams were embodied on the main deck plating, all of which act as crack arresters. The team's conclusions were that machine welding is applied to about the same extent in both countries, that complicated weldments such as stem frames do not appear to be as common in the U.S.A., that " furnacing " of plates is kept to the minimum, most of the shaping being done by presses, and that X-ray examination of ship welds is sometimes used, as many as 300 pictures being taken on a 28,000 tons tanker.

The Late Sir Robert S. Johnson

The death has occurred at the age of 72 of Sir Robert Stewart Johnson, chairman and former managing director of Cammell Laird & Co., Ltd. Only a month ago, on medical advice, Sir Robert resigned as managing director. Sir Robert entered the shipbuilding and engineering industry at Londonderry, subsequently joining the staff of Harland & Wolff, Ltd. In 1904 he transferred to Workman, Clark & Co., Ltd., of Belfast, as chief of the technical department, ten years later becoming a managing director of the company. Sir Robert was largely responsible for the company extending its activities to the building of passenger liners in addition to the construction of cargo vessels. In 1920, he left Belfast to take over the position of manager and director of Cammell Laird & Co., Ltd., and on the death of Sir George Carter two years later became managing director. In 1940 Sir Robert was appointed chairman. He was a member of the Mersey Docks & Harbour Board, and was a director of the English Steel Corporation, Ltd., La Mont Steam Generator, Ltd., Metropolitan-Cammell Carriage & Wagon Co., Ltd., and the Patent Shaft & Axletree Co., Ltd. During his 31 years with Cammell Laird's and under his leadership the company has been responsible for the construction of many fine merchant ships, the best known of which is perhaps the *Mauretania*, launched in 1938. Naval construction has also played a prominent part in the yard's activities. Sir Robert was knighted in 1942.

Mechanical Seals in T2 Tankers

The twenty-four T2 ocean-going tankers operated by the Esso Transportation Co., Ltd., are to have their cargo pumps fitted with Flexibox mechanical seals. In addition, the " Esso " 26,500-tons tankers now under construction are to be similarly equipped. The manufacturers, Flexibox, Ltd., of Manchester, started their engineering activities in 1938 with the design and marketing of a new type of seal for oil refinery process pumps. In the case of the Esso tankers, the first seals were fitted to the crude oil pumps of the *Esso Birmingham* in August 1950, and have given complete satisfaction ever since. The T2 tankers are fitted with centrifugal pumps which handle crude oil and salt water alternatively. The pumps are horizontally split with stuffing boxes at either side operating at 1,750 r.p.m. at temperatures up to 140 deg. F. Delivery pressure of the pumps can be as high as 125 per sq. in.

ROUND THE SHIPYARDS

Work in Progress in Scotland

By THE SHIPPING WORLD'S Own Correspondent

THERE has been a number of disputes in Scotland this past month over wages; although small in themselves, they suggest that a difficult situation may develop over demands for wage concessions. At Clydebank, rivet heaters went on strike for higher rates and threw riveters idle. In Greenock, platers were off for ten days over a wage dispute, before deciding to return and negotiate. One point of interest here is that strike action at a moment's notice makes the formal machinery completely redundant and suggests that the industry can expect such action without formal notice. Taken in conjunction with recent national moves for higher wages, these Clyde incidents suggest that wage bills for ships may rise again, with consequent effects on the prices for new and current construction.

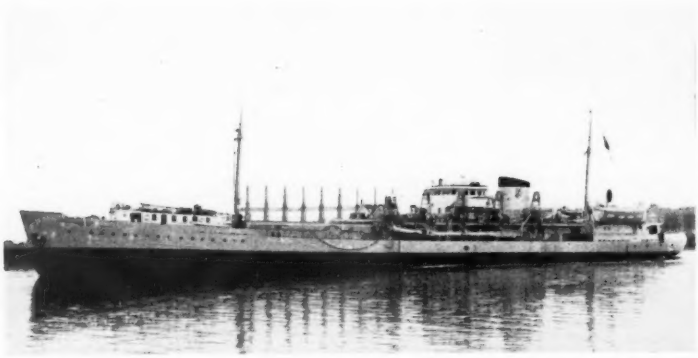
New orders booked include three 10,000 tons d.w. cargo liners for the New Zealand Shipping Co., Ltd., two for Clydebank and the other for Linthouse; a 14,500 tons d.w. tanker from Blythswood for Trinidad Leaseholds, Ltd.; and three small cargo units for Mediterranean traffic to be built at Port Glasgow. The latter are as yet unconfirmed, but the deal is believed to have been completed. These orders indicate that owners are still adding to their commitments, although it is impossible to assess whether this is being done in order to beat continuously rising prices or from the sheer need to replace older ships.

Higher Shipbuilding Prices

On the subject of prices, again, Scottish yards have stressed that the recent rise in steel prices must of necessity harm shipbuilding. The opinion has been expressed that it may well slow down the placing of new orders for a time, and there can be no question but that it will add to the costs of existing construction. Builders have no hopes that a cut can be expected at any early date and are rather of the opinion that the new prices must be regarded as the basis for further increases rather than decreases. The only consolation is the knowledge that British prices are still below Continental rates—although that is poor comfort to owners compelled to pay another increase.

History was made on the east coast by the Burntisland yard when the sister ships *Eskwood* and *Copsewood* were launched on the same tide. These single-screw bulk cargo ships of 1,600 tons d.w. were launched within half an hour of each other. This is the first occasion at Burntisland of such a dual launch. Henry Robb, Ltd., on the same tide, launched the British India single-screw tug *Arusha*, for harbour and coastal work in East Africa. Launches on the Clyde included the oil tanker *G. C. Brovig* for Th. Brovig, of Farsund, from William Hamilton & Co., Ltd. The *Alagoas* was launched by Lithgows, Ltd., for Lloyd Brasileiro. Another tanker launch was that of the *Regent Springbok* from Blythswood, for Trinidad Leaseholds, Ltd., and the Bowring organisation. A further contract for a 14,500 tons deadweight tanker for Trinidad Leaseholds has been placed in this yard. This group of new tanker orders maintains the balance between tankers and cargo units, the latter having been more prominent in recent months.

The death of Mr. Henry Robb has already been noted. In the difficult years before the war he did much to maintain shipbuilding activity in Leith, and his best monument is the thriving concern which he leaves to his successors. In Glasgow friends have been saying goodbye to Sir J. Donald Pollock who, at 83, has retired from the chair of Metal Industries, Ltd., a concern which he has piloted from the early days of shipbreaking in Alloa to its present important status. With a host of other interests on hand and sound health to pursue them, Sir Donald is assured of continuing interests despite his relinquishing his most important commercial activity.

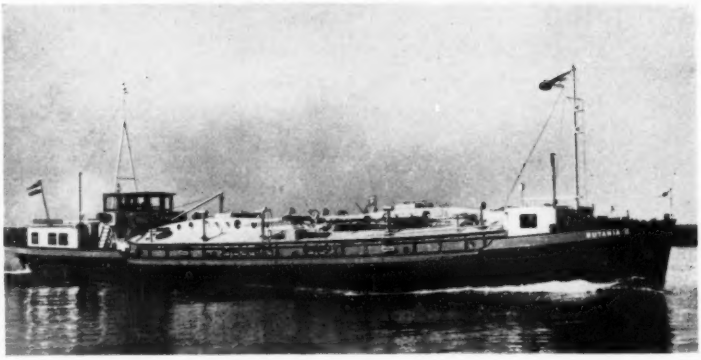


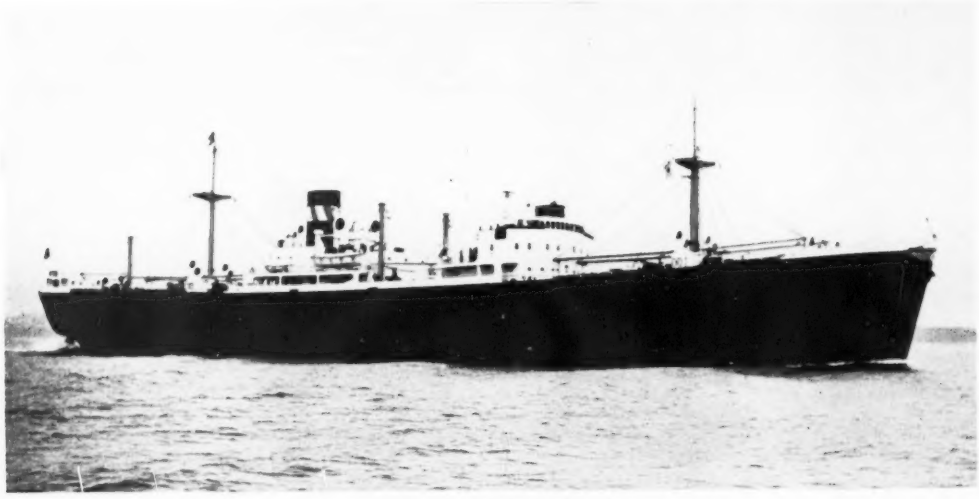
Suction Dredger "Charles Belleville"

Designed for operation in the Seine estuary, the twin-screw motor suction dredger *Charles Belleville* has been completed for the French Government by Ateliers et Chantiers de Bretagne. Of 2,430 tons gross, the *Charles Belleville* has a load displacement of 4,430 tons with a corresponding deadweight of 2,000 tons, the total capacity of the hopper being 1,000 tons. Her principal dimensions are 309 ft. 7 in. length o.a., 291 ft. 2 in. b.p., 49 ft. 3 in. breadth moulded and 19 ft. 8½ in. depth. Two M.A.N. diesel engines of 975 h.p. each are coupled to the suction pumps. The propelling machinery comprises two 1,500-h.p. M.A.N. type diesel engines built by the shipbuilders, providing a speed of 12 knots

Liquid Gas Lighter

The first two lighters in Europe specially built for the carriage of liquid petroleum gas, the *Butania I* and *Butania II*, have entered service with the N.V. Internationale Rivierentankscheepvaart Maatschappij, Rotterdam, an associate of the Shell group. The *Butania II*, shown here, like her sister ship, is 150 ft. long, 20 ft. in breadth and 9 ft. in depth. She has a capacity of 125 metric tons and can make the round trip carrying Shell Butagaz from Pernis, near Rotterdam, to filling depots at Ghent and Brussels in three days. There are two horizontal cylindrical tanks, each with a length of 40 ft. and a diameter of 12 ft., for the carriage of the liquid gas. A two-stroke 4-cylinder Bolnes diesel engine of 200 h.p. at 428 r.p.m. is fitted





Cargo Steamship "Exedene"

Of 4,908 tons gross, the single-screw cargo steamer *Exedene* has been delivered to the Dene Shipping Co., Ltd., by William Gray & Co., Ltd. She is of the open shelterdeck type with dimensions of 406 ft. length b.p., 56 ft. breadth moulded and 36 ft. 4½ in. depth moulded to shelter deck. The deadweight capacity is 8,890 tons on a draught of 24 ft. 11½ in. There are two complete decks with five cargo hatchways serving four holds, the vessel being specially designed for the carriage of grain and general cargo. A large capacity deep tank is arranged for the carriage of edible oil. The propelling machinery, built by the Central Marine Engine Works of William Gray & Company, consists of one set of triple-expansion steam engines with Bauer-Wach exhaust steam turbine. Two oil-fired boilers with forced draught and superheat are fitted

NEW CONTRACTS

Yards in Great Britain and Northern Ireland

Shipowners	No. of Ships	Type	Approximate Tonnages: Gross	Approximate Tonnages: Deadweight	Dimensions (ft.)	Speed (knots)	Propelling Machinery	Total h.p.	Engine Builders	Shipbuilders
Anchor Line	1	Cargo	—	9,450	—	—	4-cyl. Doxford diesel	3,300	—	Lithgows, Ltd.
Anchor Line	1	Cargo	—	9,450	—	—	4-cyl. Doxford diesel	3,300	—	Wm. Doxford & Sons
Counties Ship Management Co. (on behalf of Canadian principals)	4	Tankers	—	25,000 (each)	—	15	Steam turbine	—	Richardsons, Westgarth	Furness S.B.
Counties Ship Management Co. (on behalf of Panamanian principals)	1	Tanker	—	25,000	—	15	Steam turbine	—	Richardsons, Westgarth	Furness S.B.

Commonwealth and Foreign Yards

Ivarans Rederi A.S, Oslo	1	Tanker	—	18,000	—	—	Diesel	—	—	Uddevallavarvet
United Baltic Corp., London	1	Cargo	—	2,600	—	16	Two M.A.K. diesels, Vulcan coupling to single shaft	3,600	M.A.K. Machinenbau Kiel A.G.	Werft Nobiskrug G.m.b.H., Rendsburg
Soc. Francaise de Transports Petroliers	1	Tanker	—	17,500	—	—	B. & W. diesel	7,000	—	Atel. & Ch. de la Seine Maritime
Messageries Maritimes	1	Pass. and cargo liner	10,000	6,100	492 o.a. and 459.3 b.p. 63.3 38.45	17	Tw.-scr. B. & W. diesels	17	—	Forges & Ch. de la Gironde
Messageries Maritimes	1	Pass. liner	12,080	—	—	20.5	Steam turbines	24,000	Atel. & Ch. de la Loire	Ch. Navals de la Ciotat
Cie. Navale des Petroles	1	Tanker	—	12,000	—	12	Doxford diesel	3,600	Ch. & Atel. de Provence	Ch. Navals de la Ciotat
Messageries Maritimes	1	Cargo	6,000	—	—	17	Sulzer diesel	8,500	—	Forges & Ch. de la Méditerranee, La Seyne
Soc. Dunkerquoise de Remorquage	1	Tug	—	—	—	12	Christiansen & Meyer steam	1,250	—	Atel. & Ch. de la Manche, Dieppe
National Bulkcarriers, Inc., New York	4	Tankers	—	38,000 (each)	645 · 92 · 46	—	Steam turbine	13,750 (each)	—	Kure yard, Japan (leased by National Bulkcarriers, Inc.)

LAUNCHES

Yards in Great Britain and Northern Ireland

Date	Shipowners	Ship's Name and/or Yard No.	Type	Approximate Tonnages: Gross	Approximate Tonnages: Deadweight	Dimensions (ft.)	Speed (knots)	Propelling Machinery	Total h.p.	Engine Builders	Shipbuilders
Aug. —	Corpn. of Trinity House	Light Vessel No. 11	Light vessel	380	—	137.25 · 25 · 15	—	Non-propelled	—	—	Philip & Son
Aug. 31	Liberian Navigation Corp.	*Bomi Hills* (754)	Ore carrier	13,000	22,500	600 · 80 · 43	—	Sin.-scr. Doxford diesel	8,500	Shipbuilders	Fairfield S.B.
Aug. 31	Alexander Shipping Co.	*Newbury*	Tanker	12,000	16,000	499 · 68 · 37.16	—	Sin.-scr. Doxford diesel	5,500	D. Rowan	Lithgows, Ltd.

TRIAL TRIPS

Yards in Great Britain and Northern Ireland

Date	Shipowners	Ship's Name and/or Yard No.	Type	Approximate Tonnages: Gross	Approximate Tonnages: Deadweight	Dimensions (ft.)	Speed (knots)	Propelling Machinery	Total h.p.	Engine Builders	Shipbuilders
Aug. —	Booth S.S. Co.	*Crispin* (326)	Cargo	4,300	7,250	385 b.p. · 55 · 35.75	12.5	Tr.-exp. reheat steam	—	N.E. Marine	Wm. Pickersgill
Aug. —	Royal Navy	H.M.S. *Daring*	Destroyer	2,610 (disp.)		390 · 43	—	Geared turbine	—	Wallsend Slipway & Eng. Co.	Swan, Hunter & Wigham Richardson, Walker
Aug. —	Argentine Govt.	*Juan Peron* (1384)	Whale oil refinery	22,300	27,000	665 o.a. and 635 b.p. · 80 · 36	—	Tw.-scr., 6-cyl., 4-str. B. & W. diesel	—	Shipbuilders	Harland & Wolff, Belfast
Aug. —	London & Rochester Trading Co.	*Naughton*	Lighter	—	220	89 o.a. · 20 · 9	5.5	Kelvin diesel	96	—	Wm. Weatherhead, Berwick (for Fairmile Construction Co.)
Aug. —	Sigurd Herlofson & Co., Oslo	*Tank King* (1410)	Tanker	15,500	24,000	623.5 o.a. and 580 b.p. · 78 · 42.5	—	Sin.-scr., 7-cyl., 2-str. B. & W. diesel	—	Shipbuilders	Harland & Wolff, Belfast
Aug. 28	Leif Hoegh & Co., Oslo	*Hoegh Eagle* (790)	Tanker	15,083	23,000	604 o.a. and 565 b.p. · 74.75 · 41.5	14.5	Sin.-scr. 6-cyl. diesel	—	Wm. Doxford	Sir James Laing
Aug. 29	Dundee Harbour Trustees	*Scotscraig* (484)	Ferry	445	—	168 o.a. · 50 · 8.25	—	Tw.-scr. diesels, Voith-Schneider propellers	1,000	English Electric Co.	Caledon S.B.

Commonwealth and Foreign Yards

—	Biwako Kisen K.K.	*Hari Maru*	Pass. ferry	600	—	188.6 o.a. and 174 b.p. · 18 · 7.25 · 4.9 (draught)	14.5	Tw.-scr. diesels	950	—	Hitachi S.B. & Eng. Co., Sakurajima
June 13	Nippon Suisan K.K.	*Konan Maru No. 5*	Whale-Catcher	434	—	154.25 · 26.25 · 14.5	15.5	Diesel	1,800	Shipbuilders	Hitachi S.B. & Eng. Co., Mukaishima
Aug. —	Atlas Reederei A.G., Emden	*Henriette Schulte* (243)	Cargo	6,200	9,600	472.5 o.a. and 439.75 b.p. · 57.75 · 24.9 (draught)	12	M.A.N. diesel	3,550	—	Nordseewerke, Emden G.m.b.H.
Aug. —	Union S.S. Co. of N.Z.	*Karoon*	Cargo	2,500	—	290.5 · 43 · 19.5	12	Tw.-scr. diesels	—	British Polar Engines	N.S.W. Govt. Eng. & S.B. Undertaking
July —	S.A. di Nav. Lloyd Triestino	*Oceania* (1759)	Pass. & cargo liner	13,000	7,700	501 · 69.4 · 28.6	18	Tw.-scr., 5-cyl., 2-str. Sulzer diesel	14,000	Shipbuilders	Cant. Riuniti dell' Adriatico, Trieste
Aug. 23	Swedish America Line	*Braheholm* (410)	Cargo liner	4,365	6,170	400 b.p. · 57.66 · 25.25	16.5	Sin.-scr. 7-cyl. B. & W. diesel	6,700	Shipbuilders	Eriksbergs M.V., Gothenburg

MR. W. R. SERVAES has been appointed secretary of Anderson, Green & Co., Ltd., managers of the Orient Line. Mr. Servaes entered the Royal Naval College, Dartmouth, in 1935. During 1943-44 he was in Combined Operations and took part in the landings at Sicily, Reggio and Anzio, and was mentioned in despatches. He joined Anderson, Green & Company on being invalided out of the Navy in 1946

MR. LEONARD SINCLAIR, chairman and managing director of the Esso Petroleum Co., Ltd., has been elected a director of the Esso Transportation Co., Ltd. He joined the Esso Petroleum Company's Manchester office as a junior clerk in 1908 at the age of 13. Thirty-five years after joining the Esso company he was appointed a director and in 1949 was made managing director, becoming chairman earlier this year

MARITIME NEWS IN BRIEF

From Correspondents at Home and Overseas

HIGH COSTS of materials and labour are preventing the building of ships for export in Japanese yards. Only three contracts have been placed this year with Japanese shipbuilders by foreign firms. Last year nine tankers of 2,000 tons each were ordered by Brazil and two 2,000-tons freighters by India. In 1949, 10 freighters totalling 80,000 tons gross and three tankers totalling 52,400 tons gross were exported. The cost of shipbuilding has risen from 40,000 yen (about £40) per gross ton in 1946 to 117,000 yen (about £117) this year. But because of the sliding scale applied to the construction of ships when costs of materials rise, prices of vessels have been automatically raised since then by about 20 per cent.

THE PASSENGER liner *Italia* has been purchased by Mediterranean Lines, Inc., of Panama. Built as the *Kungsholm* in 1928, she was reconstructed and fitted with air conditioning three years ago. The firm, which operates under the name of Home Lines, now has four passenger vessels in the trans-Atlantic service from the Mediterranean and Hamburg to New York and Canada.

THE SECRETARY of the South and East African Conference Lines has announced that the revived German African Lines have been readmitted to the group. The *Transvaal*, the first of a new fleet of ships designed for this trade, has been launched. In Cape Town it is believed that there will be regular German shipping services again within six months.

ON September 19 William Doxford & Sons, Ltd., will launch the first of four 12,000-tons tankers ordered by the Overseas Tankship Corporation of New York. The ship has been built under the new fabricated method introduced a year or two ago by Doxford's.

MR. H. H. HAGAN, a director of Lobnitz & Co., Ltd., has been appointed a director of the Ailsa Shipbuilding Co., Ltd.

* * * *

AN EXTRA 60 million dollars (about £21 million) will be needed to complete the U.S. Maritime Administration's programme for building 50 fast cargo ships of the "Mariner" class. A fund of approximately 350 million dollars (about £125 million) was set aside for the "Mariner" building programme. Increased materials costs and a 15 per cent wage increase at shipyards have cut the number of the vessels that could be built under the original fund to 37. The cost of building each ship at today's prices is about £3,200,000, as against the contract price for the first block of five of about £2,777,000 each. Further plans are now being prepared to build more ships which will have commercial as well as military usefulness.

THE annual report of Sunderland Port Health Authority states that only 5.4 per cent of the 1,770 British ships entering the Wear were insanitary, while 7.9 per cent of the 377 foreign ships were insanitary. These were low figures compared with previous years, and might be due to the higher standard of accommodation provided on colliers and cargo ships using the port.

TWO CAPTAINS of the Shaw Savill Line, each with over 40 years' service with the company, have recently retired. They are Capt. Sir Henry Gordon and Capt. W. J. Williams. Their last commands were the *Dominion Monarch* and *Gothic*, respectively.

THE INCREASED tonnage of oil shipments to Durban from the West Indies was emphasised recently by the arrival at the port of two tankers in a single day. The two vessels, *Champagne* and *Esso Christobal*, carried nearly 20,000 tons of petroleum products. The trend is a result of the Persian oil dispute.

THE T2 tanker *Quaker Hill*, operated by Overseas Tankship U.K., Ltd., is to undergo dry docking, repairs and remeasurement for a British tonnage certificate at Falmouth prior to its transfer to British registration.

* * * *

DR. C. DANNATT, director and chief electrical engineer of the Metropolitan-Vickers Electrical Co., Ltd., has been appointed director of research and education in place of Sir Arthur Fleming, who retains his seat on the board. Dr. Dannatt is also appointed assistant managing director. Mr. H. West, assistant chief electrical engineer, has been appointed to succeed Dr. Dannatt as chief electrical engineer, and is also appointed to the board of the company. Dr. Dannatt has spent most of his working life with Metropolitan-Vickers. He was awarded the O.B.E. in 1943 for his work on Naval gunnery.

LAUNCHED two years ago, the destroyer *Daring*, built by Swan, Hunter & Wigham Richardson, Ltd., Wallsend, has completed preliminary trials. The largest destroyer ever built on the Tyne, the *Daring* has a standard displacement of 2,600 tons. Her machinery has been supplied by the Wallsend Slipway & Engineering Co., Ltd. The only other warship under construction on the Tyne—the aircraft carrier *Albion*—will be completed by Swan, Hunter's next year.

EVENING CLASSES are available at the City of London College, Moorgate, London, E.C.2, for students preparing for the Institute of Transport examinations. Among the subjects are the law of sea transport, economics of sea transport and sea transport operation. Enrolment may be made on September 18 and 19 from 5 to 8 p.m.

FOUR Royal Australian Navy General Purpose Vessels are being loaned to the Royal Navy for general duties in the Malayan area. General Purpose Vessels are constructed of wood and are diesel driven. They can be used for surveying, minesweeping and other duties.

AN EXHIBITION of pictures by the Wapping Group of Artists will be opened at the Royal Exchange on September 10 by Mr. F. G. G. Carr, director of the National Maritime Museum. It will remain open until September 29.

A NEW publicity office for the Hunting Group has been opened at 35 Old Bond Street, London, W.1.

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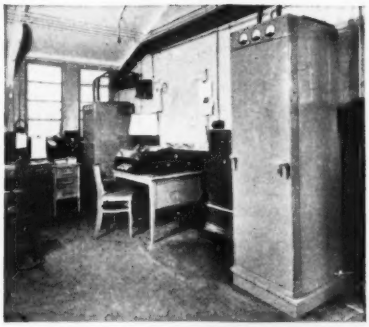

Above: *The operations room at Port Radar, Liverpool, showing both Channel 1 and Channel 2 Shore Station Equipment.*

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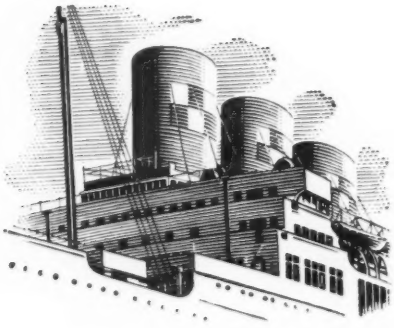

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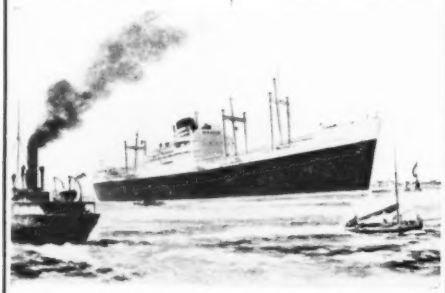

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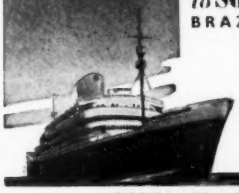

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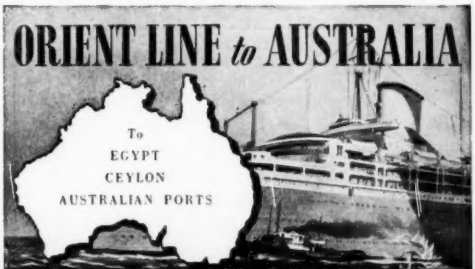

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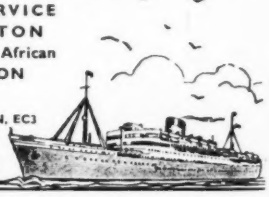

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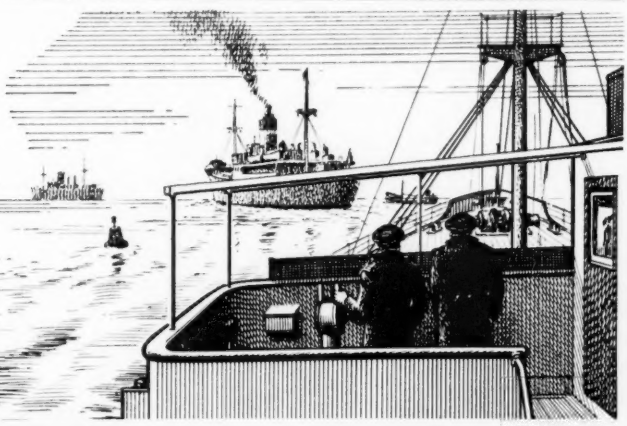

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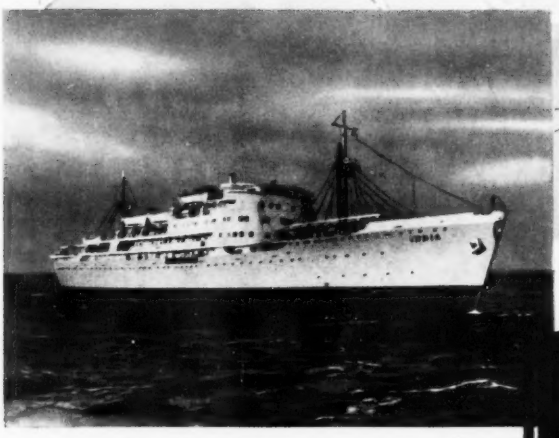

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